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TEACHING THE COMMON BRANCHES

A TEXTBOOK FOR TEACHERS OF RURAL AND GRADED SCHOOLS

BY

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PREFACE

This book represents an attempt to write a simple text on the theory of teaching for students of teaching and for inexperienced teachers, particularly in the rural schools.

Most of the would-be teachers who take an elementary course in methods of teaching are destined to begin in country schools. But most of the methods found in books on teaching have been worked out for graded schools, where there is more time, and where there are, on the whole, better teachers. The author has faced this problem by writing the present text primarily for rural teachers. The most practical assistance to him in the task has been several years' experience of his own as a country school teacher, several years more spent in training country teachers in a County Model School, and, very recently, some experience in teaching pedagogy to a group of young students in the University High School. This equipment has been supplemented by an examination of all the books used in the high-school normal training classes of those states that have them, and by submitting the manuscript to certain experts who know country schools and the capacities of their teachers.

In planning the textbook, three courses were open. First, the principles of teaching might be discussed with copious illustrations from the several subjects. This, however, would give a disjointed view of each subject. Or, the abstract principles might be stated briefly in the

first four or five chapters and applied in detail to the different subjects in later chapters. Or, — and this was the method finally selected by the author, — the subjects might be treated separately, each explained and illustrated, and a general statement of these given in the last five chapters of the text.

The reasons for adopting this plan are two. In the first place, it provides for an inductive treatment of the principles of teaching. After the student has seen how to secure interest in spelling, writing, arithmetic, reading, etc., he is able to understand the abstract statement of how to do it in all subjects; he can make his own generalizations and apply them. But, in the second place, many people do not know how to apply principles, and seemingly can never learn. This type of mind seems to handle a new situation not by reference to a principle stated abstractly but by reference to another concrete case. For such, the last five chapters are of little use. Such teachers will use only the special methods. Hence, these methods should be treated fully.

The number of pages devoted to each subject is no indication of relative importance, for much space is taken in the earlier chapters to explain technical terms and illustrate general principles.

The order of subjects in the first fifteen chapters was determined according to the teaching process most clearly exemplified therein. Spelling was selected as the first because it is essentially a drill subject, and hence easy to demonstrate to beginners. In this subject, drill is emphasized. In reading, appreciation is emphasized; in drawing, an easy correlation with other subjects; in music, the parallel with written composition; in geography, the use of the imagination; in arithmetic,

the developing method; and in civics, a psychological organization based upon practical problems. Developed in detail in one subject, the principles are then applied in the subjects following.

Each subject has been approached from the functional point of view.

The references for class reading are not exhaustive; only those books that seem sufficiently simple for inexperienced teachers have been cited.

While special attention is paid to those modifications that are necessary because of the lack of time in rural schools, yet the author believes that the text will be of value to all teachers, whether in rural or graded schools.

Acknowledgment of assistance in criticizing the manuscript is made to State Superintendent W. D. Ross of Kansas, formerly Inspector of Teacher Training Courses in the Kansas high schools; to State Superintendent W. P. Evans of Missouri; to S. E. Davis, Inspector of Teacher Training Courses in the high schools of Missouri; to G. W. Reavis, Rural School Inspector for the State of Missouri; to R. H. Emberson, Professor of Rural Education in the University of Missouri; to R. M. Dewey, of the University of Missouri; and to my wife, Jessie Allen Charters.

W. W. C.

University of Missouri,
Columbia, Mo., August, 1913.

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TEACHING THE COMMON BRANCHES

TEACHING THE COMMON BRANCHES

CHAPTER I

SPELLING

1. Subject-Matter

We shall begin our study of methods of teaching with a description of spelling. In all these studies that are to follow, we must remember that we are for the most part concerned with country schools where there is much haste and worry. Because of this, the methods we suggest must be simple and direct, and such as will take the least time possible to carry out.

Function. The first question that we shall ask of every study is: What is its use, purpose, or function? For every study has a different use or function. History's use is to tell us what was done in the past; penmanship's, the making of letters according to a certain form and standard. Botany furnishes information about plants; zoölogy about animals; and music investigates how sounds go together to produce pleasing combinations. Every subject has a function of its own entirely different from that of every other subject.

Spelling is not peculiar in this respect. When we ask spelling to state why it exists, it might, had it the power of speech, answer as follows: "My function is to see that letters have the correct order in words." "But," we

remonstrate, " writing has the same job, has it not?" Spelling replies: "No; all that writing has to do is to see that the letters are made properly. It does not care about the order of the letters. A word might be beautifully written according to the standards of writing, but be very imperfect when judged by the standards of spelling."

If this correct order were not maintained, what would be the result? This question is answered in different ways at various times. If we do not spell correctly, some say, people will think we are not educated and they may make fun of us. A sign over a business college in Chicago was recently ridiculed by the local newspapers because it read as follows: " Spelling, arithmatic, and writing taught here." Again, we may be applying for a position, and the presence of a misspelled word may injure our chances of getting it. Such a case occurred only recently when a college graduate wrote at the conclusion of his application, "Yours respecfully, John Smith." Needless to say, he was not seriously considered.

These are, however, inadequate reasons for learning to spell correctly. The real reason for learning to spell correctly is that we may be understood.

In writing words we place the letters in a certain order so that people will know exactly what we mean. A man wrote to an acquaintance to buy him a " heavey " horse for farm work. He was very angry with the horse dealer for bringing him a heavey horse, and was convinced only when he saw that he had written *heavey* for *heavy*. He had thereby lost one hundred dollars!

An automobile dealer received the following letter from a correspondent: —

" Dear Sire: Because you send me A Paid Envellope I SEnd you an answer I Have No Recolection of Applying to you to Purchase an Automobile I Am 82 years Old and very nervous Could Not possibly use one and would not accempt one if you would Give it to me Would Not undertake to Operate One No how Have No no money only a Little Pension money I draw as a Wounded Soldier was badly wounded on the Yazoo river in 1863 could not Operate Car no-how Rid in one only with great ereluctance Please excuse me from wanting such a charge to worry out my life Farewell."

Here we are inclined to think the writer an object for ridicule; and we have difficulty, moreover, in knowing exactly what he means. We can surmise what he is trying to say; but he is trusting to the reader's good humor and intuition. Every time a word is mispelled, the writer has to trust to the mercy of the one who reads it. He has no right to expect to be understood. Inaccurate spelling means faulty communication, and sometimes the inaccuracy is very expensive.

SUMMARY. The function of spelling is to enable us to determine the order of letters in words, in order that we may communicate values in writing. The penalty for poor spelling is the likelihood of being misunderstood, and, furthermore, of losing reputation with the reader.

Standard of Good Spelling. A little friend of mine was said to be the best speller in the county. His reputation as a speller was based on the fact that he had been the last person on his feet in a county oral spelling match. He wrote me, telling me the good news; and in the letter he said, " I was nervous for a wile." So, after all, he was not a good speller; for one may lay claim to that merit only when he has no errors in his written work. The

ability to spell orally is of little value to us, since in speaking we do not have to spell. We need to spell only when we write, and it is in our writing that our spelling is to be judged. One boy may be able to spell aloud such a word as *onomatopœia* and still be a poor speller in his ordinary writing; and another boy may be a poor speller in a match, but seldom make mistakes in his written compositions. No matter how well a child shows off in a spelling lesson, and no matter how well he can spell when he tries, his ability as a speller depends upon the number of mistakes he makes — the percentage of errors in his written composition, whether letters or essays.

Besides being able to spell correctly, to be a good speller one must be quick. There is a relation between a careful speller and a good speller. A careful speller is just like a good speller in that he does not allow mistakes to occur in his written work; but often a careful speller has to spend a great deal of time looking up ordinary words in the dictionary, while a good speller can spell both accurately and automatically.

SUMMARY. A student is a good speller only when in his written work outside of his spelling class he spells all words accurately, and common ones without thinking.

Structure. The function of spelling is to take care of the order of letters in written words. By the structure of spelling we mean the order in which letters are put together to form words. There is no invariable order or law in spelling. For instance, *ough* is pronounced quite differently in *through*, where it has the *oo* sound, from *ough* in *cough*, where it is pronounced *off*, and from *ough* in *dough*, *plough*, and *tough*. Here we have the same

combination of four letters pronounced in five different ways.

Attempts have been made to formulate rules for spelling; and some half-dozen of these hold fairly well, although each has numerous exceptions. Such rules may be found in most dictionaries and spelling books. They are, however, of little use. Every word has to be learned by itself. Still, these rules, while of little use, are of some use, and should be learned by every child before leaving the eighth grade.

Simplified Spelling. Spelling, of course, changes naturally year by year, as one can easily see by comparing the quaint spelling found in an old copy of the Bible with modern spelling. One notices this particularly in comparing our spelling with that of Chaucer. But the changes are not very rapid and are more likely to be illogical than logical. Our chances for getting a better spelling by natural means are, therefore, very poor indeed.

A great many thoughtful people feel this way about it, and a few years ago Mr. Carnegie was prevailed upon to do something to help the situation. As a consequence we have now a Simplified Spelling Board, with paid officers, and headquarters at No. 1 Madison Avenue, New York City. This board is busy trying, not to devise a new system, but to make spelling more consistent and regular. For instance, they make *catalogue* appear as *catalog*, *dipped* as *dipt*, and *through* as *thru*. All of these changes make for simplicity; and while they look odd to this generation, the present forms that we use would look just as odd to boys and girls if they had been taught the new forms. Oddity is altogether dependent upon what one is accustomed to.

Copies of these lists may be secured by writing to the address given above. It is a good thing for people to use the simplified forms in their private correspondence; and if we could get children to use them, they would not think that *kist* was any more peculiar than *kissed*. It will be a considerable trouble for us who have learned the old way to adopt the simplified spelling; but if we are willing to take the burden upon our shoulders, the next generation will spell as we wish them to. In one generation the present teaching corps could make the complete change.

SUMMARY. English spelling is very irregular. There are few rules for spelling that will hold. The work of the Simplified Spelling Board is worthy of the enthusiastic support of intelligent teachers.

Course of Study. There are thousands of words in the English language — so many, in fact, that we cannot expect children to study all of them. So the important question arises, What words shall we study in school? These words, when selected, form what we call the course of study in spelling. Pretty nearly everybody agrees that the words to be chosen should be common words. But there are, among those who compile spelling-books, very different ideas of what are common words. For instance, *diocesan*, *calligraphy*, and *iridescent* are included in some lists. As a matter of fact, the early spellers tried to get, not common words, but representative words; and later spellers have retained many of these because they were once the fashion.

Some spelling books, however, have lists of much simpler words; for instance, the Milwaukee list, which is composed of the actual words misspelled by pupils in their class work.

There are three sources from which to draw material for spelling lists. The first of these is the speller. But often the words in it are unknown to the children. Attempts to remedy this difficulty have been made, as in the Bailey-Manly Speller, by putting each word in a sentence; or as in the Chancellor Speller, where the meanings of words are given as in a dictionary. But, at best, I believe that the teaching of unusual words to children is largely a waste of time. We learn to know words in their contexts, and it is artificial to manufacture contexts. When the speller is used, all words not understood by the children should be crossed out as not yet worthy an expenditure of time and effort.

A second source from which to draw lists for spelling is the books that the pupils use in reading, history, and geography. Difficult words may be selected by the teacher and made the basis for study. This is certainly better than the use of unknown words in spellers. The trouble in using such lists is that it takes time to select the words. I found by experience in my rural school, however, that the amount of time need not be very great. I used to mark from six to ten words in less than a minute by having the pupils, while I named line and word, follow closely and put a pencil dot under each word named. Some teachers, moreover, with classes above the fourth grade, require their pupils to know how to spell every word in the lesson, and spend a minute or so at the beginning of the lesson in testing a few words selected at random.

For the country school the latter is probably a better plan than to take the time to put the words on the board. It might seem that a class could not be held responsible for every word in a whole lesson; but, if that

difficulty were present, then a part of the lesson — a paragraph or a page or a section — might be set.

A third method of selecting words is to make up the list from the words misspelled by the children. In using this list, the teacher is sure that the children know what the words mean, and that they realize, at least as far as these words are concerned, the necessity for drill. This double assurance is of much importance in the justification of a method in spelling. If a pupil is to be judged by his ability to spell when he is writing letters or themes, he will realize that when he fails to spell correctly he ought to learn the word. On the other hand, if the word he is called upon to spell is not one that he uses in his writing, he will think it does not matter a great deal whether he can spell it or not.

This may seem to be too lax a standard; but its laxity is, indeed, only seeming. If we read, we do not need to spell — we need only to recognize the word; and if we never write the word, our needs in this respect are not increased. Recognizing words is just like recognizing people. If I have to paint the picture of a friend, I must know the length of his nose, the color of his eyes, etc. I can easily recognize him, however, without being able to tell accurately any one of these details. Thus I do not need to spell a word unless it is in the vocabulary I use when I write; in reading it is enough to recognize it.

The difficulty with this method is that it takes time to pick out the words and put them on the board. One teacher with a small class had a class "secretary" who collected all the misspelled words marked by the teacher in the written work and wrote the list on the board once a week for class study. It was a seventh-grade class, and they did not make many errors in a week. This

difficulty of time is not serious, for certainly the words commonly misspelled by the children ought to be drilled upon from time to time.

Summary. Spelling lists may be made up (1) from spelling books, in which case the list is not likely to fit the needs of the pupils very well; (2) from hard words in the reading matter in each subject ; (3) from the actual errors the pupils make in their written work. If the speller is prescribed, the teacher has no alternative; but whenever possible he should select his lists from reading material and written work.

Where should Spelling begin? As a general proposition, spelling work should not begin before the third grade. I mention the third grade because that is where pupils begin to write stories. In the first and second grades they either copy work or ask the teacher how to spell words. And all this time they are, of course, learning informally how to spell, and picking up letter orders. In the third grade, however, they read more widely and write more freely, and this is where attention should begin to be paid to spelling. It begins here and ends at the grave — in many cases not before that time.

Children at this age have a very ambitious vocabulary, many of the words of which they cannot spell; and consequently the number of errors is very large. To help reduce this number, it is well to have a " Black List," composed of common errors, posted in a conspicuous place and increased at the rate of two words a day. The words to be added should first be studied in the class. To misspell any word in this list a second time should be held a particularly blundering crime. By this careful attention to a very few words each day, a considerable body of words of which the pupils feel sure is slowly built up.

2. Interest in Spelling

One of the most difficult things about the teaching of spelling is keeping children interested in the subject. For most children it is a very dry subject, although it must be admitted that some children enjoy it as much as they do any other. It is uninteresting particularly to those pupils who have difficulty with it. To them, it is very exasperating to have to decide whether the word is *precede* or *preceed* when their memory is not very distinct in the matter and when there is no reason, so far as they can see, why it should be one in preference to the other.

Motive. One of our big problems, then, is to get the pupils interested in spelling, or to fix conditions so that they will have a motive for studying the subject. To say that one is interested in a subject is one way of saying that he has a motive for its study. One may have, however, other motives than that of interest — for instance, need, envy, or avarice. So we may understand interest to mean motive in its best sense; and when we speak of getting children interested, we mean about the same as giving them a motive.

Immediate Interest. Fortunately for some pupils, they like spelling for its own sake. When you ask them why they like spelling, their only answer is the eminently feminine one of "just because." Pupils often love the subject because of the infectious enthusiasm of a teacher who likes it better than all other subjects, or as one among many loved. When a subject is loved for its own sake, it is said to be of *immediate* interest. That, then, is a goal attained. So now let us take up a harder question.

Mediate Interest. What will the teacher do when the children are not interested in spelling? That is, if there is no immediate interest in spelling, how can interest be put into the subject? How can mediate interest be aroused? Now, if we are looking for a rule, the answer to this is very simple, though it is reasonably hard to apply the principle. The abstract statement is given very well by James as follows: "*Any object not interesting* in itself *may become interesting through becoming associated with an object in which an interest already exists.*"[1] This makes a very simple plan for spelling. If the children are not interested in spelling, then find something they are immediately interested in and associate spelling with it. Nothing could be easier to state. Our real trouble begins when we try to find things in which the children are already interested and to connect spelling with them.

Nevertheless, the task is not at all impossible, and there are two methods quite different in spirit which are used in teaching spelling and, indeed, in practically every other subject in the course of study.

Appeal to Generic Values. One of these methods is as follows: There are a number of things in which children are interested in a general way. A few of these are avoiding punishment, being kept in after school, being scolded or praised, and doing what is expected of them. The teacher may connect spelling with these. For example, Johnnie may have no interest in his spelling lesson; for three consecutive days he has missed six words daily. He has no immediate interest in these words. The teacher figures it out this way: "I see that Johnnie does n't like to be kept in after school." So she says to

[1] James's *Talks to Teachers*, p. 94.

Johnnie, " Unless your lesson is perfect to-morrow, you will have to stay in." Now, if Johnnie really loves to get out on time, he will probably get up enough interest to learn his lesson. Or perhaps the teacher finds that Johnnie has an immediate interest in the good opinion of his father; and she connects the spelling thereto by informing him that unless improvement is made, word will be sent home.

One of the chief difficulties in using this method is to find things that really are of immediate interest. For instance, a teacher used shame, thinking that this was of immediate interest. But the boy did not study his spelling any better. He did not mind the sarcasm of the teacher. We may think that a twelve-year-old will be shamed by staying in after school, by sitting with the girls, by being suspended, or by getting a whipping; but unless these *are* things about which he cares, they will furnish no motive for his studying anything in which he is not interested.

We call such interests as we have mentioned *generic* because they apply to a whole class. One can get children interested in spelling, history, geography, or arithmetic by the same general motive. The generic value works equally well in any place.

In this connection, contests may be mentioned as one generic value to which appeal is widely made. Spelling matches do engender a great deal of interest, even among those who have no hopes of remaining long on the floor. Spelling bees help, also; and contests between schools do much for interest in the subject.

Summary. In getting mediate interest in spelling, one method is to make an appeal to certain generic values which are of immediate interest to the pupils.

Appeal to Specific Need. We must not introduce too many technical terms in the first chapter, but unfortunately spelling is such a broad subject that we need to discuss practically all the technical terms contained in the theory of teaching. However, there is only one more group of terms that will present any difficulty; and these, I hope, will not be very hard.

I said above that the second method of securing mediate interest was quite the reverse of the first, which has just been referred to as a method by which appeal is made to a generic value of some sort.

This second method proceeds as follows: In seeking for the thing of immediate interest, the only point to be added to the foregoing is to consider the function or use of spelling. That is, instead of resorting to the fear of whipping or scolding, or the love of approbation, as motives, and seizing upon them in a haphazard way, stop and ask yourself, " What is the use of spelling? " Your answer will be, " To help express something of value in writing and to help to get valuable ideas from the printed page." Then should we not connect spelling with reading and writing, and not with fear of punishment or of scolding?

What we have to do is to see that the children have an immediate interest in writing and in reading. If they are really interested in what they write, they will be sorry to be misunderstood because of poor spelling. The case of the heavey horse mentioned above is a good illustration. I venture to say that the man who wrote that letter had a strong motive for and felt a keen interest in spelling every time he wrote a letter for a long time after. Such instances the teacher should collect and keep for purposes of inspiration and for the reinforcement of the

desire to spell correctly. Instead of saying to Mary, " If you do not learn your spelling, you will have a poor grade, or I shall tell your mother, or keep you in after school," we get her absorbed in reading interesting material or in writing valuable things; that is, things that to her seem worth the attention of others. If we are successful in this we need only say, " Mary, you have missed a fine point because you could n't read this word "; or, " You have made a sad mistake because you did n't spell correctly." This is harder, of course; but it is more fun, and it is more logical because the only natural motive for correct spelling is correct communication. If we have to, we may fall back upon telling mother, or keeping in after school. But until we have to resort to such measures, let us give this elusive specific need a fair chance.

How to get children interested in composition work is a topic that we shall discuss in full in the chapter on language. For in the case of spelling, interest in composition is the kernel of all the seed of effort arising from a specific need. (The need in this case is said to be specific because it applies only to spelling in its relation to one or two things — written words and printed words. It is not generic or of general application, as is doing one's duty, or the fear of punishment.)

Summary. Another method is to find out the specific use of spelling and apply to spelling the interest found in connection with that use.

Correlation. The plan that advises the arousing of a specific need provides for the teaching of spelling along with the other subjects. When a boy makes mistakes in his spelling, geography, history, or composition, the

misspelled words are used as spelling-lesson material. If he has trouble in understanding what he reads in geography, history, or arithmetic, sufficient time is spent upon his spelling to enable him to recognize the words.

This plan, of course, is different from one in which spelling is studied out of a spelling book with either immediate interest or interest aroused by an appeal to generic values. This difference is described as being in the one case a correlation between spelling and certain other subjects, such as history, geography, and arithmetic, and in the other case a study of isolated spelling. That is all that correlation means — studying one subject in connection with another.

Instances of Correlation. It may be objected that if spelling is not studied by itself in isolation, the students will not spell well. But that does not always seem to be true. For, in Philadelphia, a few years ago, Cornman had some of his teachers teach spelling in a separate period and had others teach it incidentally in connection with every subject and never by itself. He found after giving the test a rather extensive trial that the method whether of correlation or of isolation made little or no difference.

In general, then, one can say that little is lost in having correlated spelling, and for the country school much time — that most valuable asset — is saved. A moment or two spent occasionally on a few words in geography, history, or reading will accomplish just as much as a specific period every day, and there is a saving of just that much time.

I do not believe it wise, however, to give up the special spelling period entirely. There should be some such time

when all the misspelled words are brought together for special study. The " secretary " I mentioned above had as his business the gathering up of all the errors of the class. He placed them on the board; and if, when the test was given, there were still some words misspelled, these headed the list for the next week.

SUMMARY. For the country school, at least, it pays to teach spelling for the most part incidentally to other subjects and in correlation with them. It saves time and produces as good results. But when taught incidentally some time must be put on spelling in the different subjects.

3. Learning to spell

Types of Imagery. In talking over our problems we have discussed methods of getting interest, the rules of spelling, and the function of the subject. But we have avoided any reference to methods of studying spelling, because that subject is to be taken up in this section.

The first interesting thing about learning to spell is the fact that there are different types of imagery used by people who spell. Mental images are of many kinds; namely, images of taste, smell, sight, hearing, touch, and motor and kinæsthetic images. Of these, three are of greatest use in spelling. These are visual, auditory, and motor imagery, the last of which originates in the muscles that control the fingers and the vocal cords.

The presence of the auditory images is seen in the case of those who say, " The spelling of that word does not *sound* right." They can hear the sounds " in their heads," just as many people can hear tunes in their heads. The visual image is seen in the case of those who say, " That spelling does not look right." They compare the spelling with a memory picture stored in their

minds. The motor imagery is seen in the case of people who cannot be sure of a spelling until they have spelled it over to themselves and have recognized the " feel " in their throats, or have written it out rapidly and allowed the hand to have full play in the writing.

Some are visualists, some audiles and others motiles; but most people combine all three types, with the visual as the strongest. That is, the majority of people, in deciding whether a word is right or wrong, spell it aloud or, in very obstinate cases, write it out and look at it, but usually resort to visual images first.

This means that, in spelling, a liberal use of all three types should be made. The pupils should pronounce the words, spell them over to themselves, either aloud or under the breath, and write them out. All three are effective; and by using them each student will come to rely upon the images which for him are most efficient.

SUMMARY. There are several different types of imagery used in varying degrees by different people. Care should be taken to see that all types are given a chance in drill work on spelling.

Oral Spelling. The popularity of oral spelling indicates that it has some value. This value is that it combines hearing with motor imagery in the vocal organs when the pupil spells aloud, and utilizes visual imagery when the pupil is tested. For instance, if a boy is asked to spell *popular* aloud, he has to think how it is spelled, and in so doing will probably use visual in addition to auditory and motor imagery. Oral spelling is favored as a school exercise because it gives the teacher a chance to test the pupils without having to examine spelling papers after the class is over. It does not give as thorough a test as a written exercise, because every pupil does not

have to spell every word; but it is less trouble to a teacher, and, taken all in all, it is a method well worth using now and then in rapid drills and tests.

But the important thing to remember always is that a pupil's ability to spell is to be judged by his percentage of errors in themes, exercises, and letters which have not been written as spelling tests. His ability to spell orally is all right as far as it goes, but it does not provide a standard for judging his real proficiency.

Spelling should, therefore, be studied chiefly in written composition. Its use is for writing, and habits should be set up with the idea of the word at one end and the finger tips at the other, so that when the word is thought of, the hand may write it correctly without hesitation. If oral spelling is the chief reliance in drill, then we set up a habit with the meaning of the word at one end and the tongue at the other; but since no one writes with his tongue after he is eight years old, this connection is not very useful.

Laws of Habit. Learning to spell is simply a matter of habit. What is needed is the ability to write down a word as soon as its need occurs without thinking how it should be done. For instance, as I write here I think of words that I wish to transcribe to paper; and since I am a fairly good speller, I am able to write down the words correctly spelled without thinking about them very much. If I had to stop to think how each word is spelled, or to look it up in the dictionary, I would waste much valuable time that I can now spend in thinking about what I am going to say.

The ability to write a word without having to think about the spelling is spoken of as the ability to spell *automatically*. To set up automatic spelling habits is the

aim of all attempts to teach the subject. In forming a habit of this sort there are just three things to do. The statement of method is very simple, although, unfortunately, it is much harder to perform the work.

Get a Clear Picture. The first thing to do is to get the pupils to pay close attention to the word to be memorized; they must get a clear picture of it. The word should be written upon the board, or seen in print. The pupils should each pronounce the word and write it out for themselves once. Incorrect pronunciation explains one half the cases of poor spelling. If there is anything unusual about the word, it should be pointed out. For instance, if in the word *precede*, the *ede* syllable gives trouble, that syllable might be written in red chalk, underlined, or inclosed in a circle. In words of more than one syllable the whole word should be syllabicated in pronouncing, and the syllables may be written slightly apart from one another without a hyphen, as *au to mat i cal ly.*

Diacritical markings should at some time be taught to pupils so that they can interpret pronunciations in the dictionary; but they should not be taught in the spelling lessons. They may be taught in reading. We have come to the conclusion between ourselves that words that the pupils do not know should not be taught in a spelling lesson, and, consequently, diacritical markings are not necessary. Then, still worse, words with diacritical marks all over them do not look like the same words with the marks off. To us who are grown up, *crĭt'ĭ çīze* looks like *criticize*, or *sc̆i̲s̲'* *s̲o̲r̲s̲* closely resembles *scissors*. But to little children there is as much difference between these forms as there is to you and me between a woman with her hat on and the same woman

with her hat off. You or I could learn to know her with her hat off, yet might be entirely unable to recognize her when we met her with it on.

Some schools, as those of Cleveland, limit the spelling list on any one day to two words. By having just two a day and ten in a week the children get a clearer view of each word than if they had to study ten in one day. Milwaukee uses four in each lesson, and it seems fairly certain that this is the upper limit. In fact, if two words carefully chosen are learned *very* well each day, it will not be long before the student is able to spell *all* the words he uses ordinarily.

Attentive Repetition. The second thing that the student needs to do is to repeat the spelling words over and over. In doing so the lesson may be spelled aloud, written out, or spelled to one's self; or it may be repeated in any two of these ways. For instance the pupil may write it out, look at it carefully, and spell it aloud or under his breath, all as the same exercise.

But mere repetition amounts to little unless it is attentive. Boys say that they study a spelling lesson for a half-hour, when as a matter of fact they merely sit with a book before their faces for a half-hour and perhaps study their spelling five times, for a minute at a time, with five-minute periods in between, during which they are thinking of something else. Unless the repetition is attentive, it makes the spelling worse than it would be if no study were given to it at all. The important thing for the teacher is to enlist the boys and girls in the campaign for saving time. It can easily be shown that by concentrating attention, time for play, for reading, and for picture drawing can be gained. Have them follow the plan of studying the

spelling for five minutes, writing, pronouncing under the breath, etc., and then leave it alone for a while, — perhaps until after they have gone home,— to be followed by another siege in the morning. It can be laid down as a general principle that a pupil in the grades cannot profitably spend more than five minutes on spelling at one time. Psychology tells us that we memorize more easily if we memorize for a short time, and then leave our material for a while, than if we try to do all the memorizing at once. That is, five minutes at night and five minutes in the morning will produce better results than ten minutes all at one time. When the child sets up as his ideal the rapid and efficient memorizing of spelling forms, he can be taught to omit study on the easy ones and concentrate on the hard ones by writing, pronouncing under his breath, etc.; and he thereby can economize effort by studying where it will do the most good. He will learn to use his time intelligently instead of trying to memorize without intelligence like the proverbial parrot.

Profitable repetition is secured in some schools by reviewing the same words from day to day, and then, after letting them rest for a time, reviewing them again at the end of each month till the end of the year. Such a plan is very beneficial.

Spelling should, however, be studied chiefly through writing. Its use is for writing, and writing habits should be set up as firmly as possible. Part of the method of study might be to use the word in proper sentences. The only trouble with this is that if a sentence of five words is formed, five words must be written to get a drill on one.

Automatic Control. The third important point to

bear in mind is that unless the spelling of a word is made automatic, all the labor is lost. That is to say, in the spelling of *superficial* as *s-u-p-e-r-f-i-c-i-a-l*, the letters must follow with rapidity or certainty, and without thought. It will not do to spell *sup* and then stumble over *er*, or spell *superf* and stumble over *icial*. This is very important. If the child cannot do this at one sitting, he should try it at a second sitting or a third sitting. In order to make the sequence of letters very stable, the words have to be spelled at many different times. Reviews are essential, and speed is to be striven for at the expense of everything but accuracy.

This is another reason for not having too many words in one lesson; for with many words it is a physical impossibility to make them all automatic within the time allowed, and very little real good is accomplished. A few words well learned and frequently reviewed make a nucleus that broadens rapidly from week to week and from year to year.

SUMMARY. In drilling on words, there are only three things to observe: first, a clear initial picture; second, attentive repetition; and third, repetition enough to make the spelling automatic.

Black List. The black list of which I spoke above grows in the following way. The pupils in a third grade were drilled on two common words a day for a week. The next week, ten new words were studied, together with the ten old words. In the third week ten new words and the twenty old ones were studied. In the fourth week ten new words were added, and the ten of the first week dropped. At the end of each six-weeks period all the words that had been studied during the year up to that time were reviewed again. At the end of the year

three hundred and sixty words had been well learned. Little attention was paid by the teacher to other misspelled words in any papers written, but the words on the list were of peculiar sanctity and were not to be missed again after being put there.

This plan was kept up for six years until the pupil had finished the eighth grade. Several times in each year the words of former years were reviewed and tested. At the end of the eighth grade the pupil had over fifteen hundred words, which had been so well selected that they comprised practically all his writing vocabulary. And what was more interesting, by learning to spell some words well, careful spelling habits were set up which helped him in spelling many words that he had not taken up in his black list. Such a plan as this is not difficult to work out and has all the advantages of psychology and pedagogy ranged up alongside to help make it effective.

4. Class Mechanics

A few very simple rules may be laid down for handling spelling recitations. There should be as little formality as possible. In oral spelling tests, it is not necessary to have the pupils stand in line. They may sit on the front seats, or be grouped in their regular seats. Sometimes there may be "spelling down" for the sake of variety.

But whenever a test is being given, the words should be pronounced distinctly by the teacher, and only once except for good cause. The pronunciation should not be artificial to bring out a spelling, as pronouncing *cupboard* as *kụp-bōrd* instead of *kuberd*.

When a pupil is to spell a word orally, he should pro-

nounce the word first so that there will be certainty that he has the correct word; he does not need to pronounce the word after it has been spelled, because there is no use in doing so. He should not pronounce syllables before spelling them, as our forefathers used to do, and as a few teachers still do. It is not necessary to spell thus: *b-a, ba, k-e-r, ker, baker.* It is enough to do it thus: *baker, b-a-k-e-r.*

When written exercises have been set and completed, the teacher can save time in correcting by having the pupils change books or slates and, as she spells, mark the incorrect spellings. After the errors have been totaled, the books are handed back to the owners. Children seldom cheat. They do, sometimes, make mistakes; and for these the teacher must watch. After the errors have been noted by the pupils who made them, the words misspelled should be put in a special book and studied outside of class, in preparation for the next lesson. Sometimes it is a good practice to have them write out each of the words they erred in, in correct form ten times *attentively.* Sometimes it is better not to set a limit, but to say to the class, "Write them out until you are *sure* you know them."

In incidental spelling, plans for marking words have been discussed. In spelling lists made up from incorrect words in written work, plans for collecting the words have already been given. But in all of them it is important to remember always that there is no set formal method of conducting any recitation. What is wanted is to get things done with as little waste of time and as little confusion as possible; and the simpler everything can be made, the better.

Alternation. By alternation is meant that two grades

study together and take the work of the one grade one year and the work of the other grade the second year. Spelling is one of the subjects which can very well be alternated. When a special spelling class is taught, the sixth, seventh, and eighth grades can take the same work at the same time. The eighth-grade pupils are not so much better than the sixth-grade in spelling that they cannot study together if care is taken in the selection of words. Spelling should also be given a little time in each of several other periods each week, and particularly in the language work when the "Black List" may be worked upon.

REFERENCES FOR CLASS READING

Black. *Primary Methods*, vol. II, pp. 154–66. (General information about spelling in the primary grades.)
Burnham. *The Hygiene and Psychology of Spelling*, Pedagogical Seminary, vol. XIII, pp. 481–89. (Types of imagery.)
Charters. *Methods of Teaching*, pp. 158–71. (Generic and specific values, and the idea of need.)
James. *Talks to Teachers*, pp. 91–99. (How to get interest.)
Pyle. *Outlines of Educational Psychology*, pp. 146–58. (The formation of habits.)
Rocheleau. *Intermediate and Grammar Methods*, vol. II, pp. 199–208. (Spelling in the upper grades.)
Wallin. *Spelling Efficiency*, pp. 1–25, 82–84. (Rules for teaching spelling and discussion of incidental and formal spelling.)
Webster's *Unabridged Dictionary*. (List of rules with exceptions.)

CLASS QUESTIONS

1. Examine four spellers and criticize them (by criticize we mean always the mentioning of *both* bad and good) on the following points: —

(*a*) Number of words per lesson.
(*b*) Frequency of reviews.
(*c*) Familiar and common words.
(*d*) Diacritical marks.

2. Give six examples of a case in which what was written was misunderstood because a word was misspelled.

3. Should children be allowed to use their dictionaries when they are writing themes? Why? If they may use them, should they be required to use them? If so, in what grades?

4. Should an eighth-grade pupil ever be excused from handing in incorrectly spelled work except on examinations? What are your reasons?

5. Give five sets of examples wherein the same letters have different sounds, and five sets in which the same sounds are represented by different letters.

6. Write out and memorize the rules about dropping final *e* and about doubling consonants. Gather a few exceptions to each.

7. Write to the Simplified Spelling Board at 1 Madison Avenue, New York City, and ask the Secretary to send you the printed lists of simplified words. Are you willing to adopt these for your own correspondence? Why?

8. Take Webster's Blue Back, or any other of the older spellers, and pick out twenty-five words which you are sure pupils would never use in writing, unless they secured a college education.

9. Let the class in pedagogy take all the written work (except spelling exercises) of a sixth-grade class for one day. Pick out all the errors and tabulate them. Arrange them alphabetically and notice how many times each was misspelled. Estimate the total number of words written by all the class and determine what per cent was incorrectly spelled. Was this good or poor spelling? If you were going to make to-morrow's spelling list from these words, which ones would you select?

10. What generic values appealed most strongly to you when you were in the grades? Which now? How do yours differ from those of others in the class?

11. How can you get children interested in spelling through the specific need for the subject?

12. What should be the nature of spelling in the first two grades?

13. Ought a teacher to lower a grade in arithmetic or history because the spelling is bad? Why? If he does n't, what effect will it have on the spelling work? If he does, what effect will it have on the arithmetic or history work?

14. Make a study of your own imagery in deciding how you tell when a word is correctly spelled. For instance, pick out some word that you have difficulty with, and having decided

which spelling is correct, study your imagery and decide whether you went by visual, auditory, or vocal motor or hand motor imagery.

15. What has been your best method of studying spelling? Make this a class exercise and note any tricks any of your classmates use in learning spelling.

16. What would you do if you had a speller in your school in which there were many words that the pupils do not understand? If there are ten or more words in a lesson, ought you to cut some of them out? Dare you discard the spelling book?

17. What do you think about teaching roots as an aid in spelling? Is the time well spent? Why?

18. What are the advantages of spelling contests with neighboring schools? With fathers and mothers in the district? What are their limitations?

19. Have you ever tried the "Black List" idea? If you try it soon, write and tell me about it. Keep a list of all your words. I am anxious to gather a large number of cases in which it has been worked successfully, and in which it has failed, with the reasons why.

CHAPTER II

PENMANSHIP

1. Subject-Matter

Function. There is a widespread idea that the function of subjects is to train the memory, the imagination, or the reason. Why study arithmetic? some one asks. "Because it trains one to think closely," says the teacher. Why study history? "To train the memory." Why study writing? "To make one neat and accurate."

But did you ever stop to think about this? Did the people who invented arithmetic do it to get a device for training the reasoning? Or does the man who consults history use it just to train his memory? Or was writing invented as a means to neatness and accuracy? As a matter of fact, arithmetic was invented not to train the powers of reasoning, but to help men to handle numbers. History was not invented to train the memory, but to give advice and entertainment from the experiences of the past. And in like manner the function of writing is not to train in neatness, but to do something else.

It is true, of course, that arithmetic does give mental training, and so do history and penmanship. But that is not their real or *intrinsic* function; it is only a by-product. It is not the use for which people are preserving them. It is only an indirect purpose about which we make a great deal of to-do in school. Why we talk about this training or disciplinary function is a long story which we cannot tell here.

The real or intrinsic function of *penmanship* is to

help in the communication of values by providing a set of letters made after a conventional form. The function back of writing is the desire to communicate. Communication may be set up through oral speech, drawings, hieroglyphics, or words; but when we decide to use words and attempt to give them a definite form, we *write*. The function of penmanship is, then, to attend to the forms of letters. A person may be a good speller, because he knows the correct order of letters in words; but he may be a poor writer because he is clumsy and inaccurate in forming the letters. So, also, a man may be good in composition, but poor in writing. And as happens not infrequently, beautiful writers may be poor spellers or poor in composition work. If all knowledge and efficiency consisted merely in getting the correct form for letters, a man would be judged a success or a failure by one look at his handwriting. But it is only one item in all knowledge and would be of very little use where people talked over the telephone, spoke face to face, or used a typewriter. However, everybody finds it necessary to communicate ideas by writing, because either the one to be addressed is not present, or no typewriter is at hand.

Summary. The function of penmanship is to assist in the communication of values by providing correct forms for the letters.

Standards. The standard of good writing follows directly from this summary. Writing is well done when it conveys in the best manner possible the values concerned, and it does this by providing a form that can be easily read, that looks well, and can be easily produced. Or, to use the technical terms, the standards of good penmanship are, on the side of form, legibility and

beauty, and, on the side of the penman, rapidity. A rapid, legible, and good-looking hand is the ideal toward which to work.

There are two qualities of penmanship. The one is the result of a conscious effort to do one's best, the other is the hand written under normal conditions and without unusual care. These two grades of writing are usually quite dissimilar — one's natural hand is seldom one's best hand.

But are we to judge of a pupil's penmanship by his best hand or by his natural hand? Obviously it depends upon whether we want his dress-parade writing or his shop writing. But, for practical purposes, the student must be judged by his natural hand. This is the hand he uses most of the time, and it is, therefore, the vehicle by which most of his written ideas are conveyed to others. If it is difficult for others to get his ideas ninety-nine per cent of the time when he is writing his natural hand, it will not matter a great deal how well he may be able to write in the negligible remaining one per cent. He is a good writer who, writing briskly, is able to put, first, a legible and, secondly, a good-looking, hand on paper every time he writes. An excellent copy-book writer may or may not be a good writer; for a good writer is one who writes well for his associates.

Thorndike's Standards. To get a standard for writing, Professor Thorndike made an investigation of over one thousand samples of writing and secured the opinion of from twenty-three to fifty-five judges on these. As a result he and they have worked out a standard form for grades five to eight which is here appended.[1] Perfect

[1] Acknowledgment is made to the Columbia University Press, and to Professor E. L. Thorndike for kind permission to use the Thorndike Handwriting Scale.

Quality 13. Sample 4

Then the carelessly dressed gentlemen stepped lightly into Warren's carriage and

Quality 12. Sample 30

lightly into Warren's carriage and held out a small card, John vanished behind the bushes and the carriage moved along down the drive

Quality 12. Samples 7 and 52

behind the bushes and the carriage moved along down the driveway. The audience of passers-by

Then the carelessly dressed gentlemen stepped lightly into Warren's carriage and held out a small card, John vanished behind the bushes and the

Quality 11. Samples 23 and 45

riage moved along down the driveway. The audience of passers-by which had been gathering about them melted away

along the down the driveway The audience of passers-by which had been gathering about them

SCALE A

A SCALE FOR HANDWRITING OF CHILDREN IN GRADES 5 TO 8[1]

The unit of the scale equals approximately one tenth of the difference between the best and worst of the formal writings of 1000 children in grades 5–8. The differences 16–15, 15–14, 14–13, etc., represent equal fractions of the combined mental scale of merit of from 25 to 55 competent judges.

Quality 18. Sample 125

showed that the rise and fall of the tides
the attraction of the moon and sun upon

Quality 17. Sample 141

Then the carelessly dressed gentleman
stepped lightly into Warrens carriage and
held out a small card, John vanished be

Quality 16. Samples 32 and 84

Then the carelessly dressed gentle-
man stepped lightly into Warrens
carriage and held out a small

gentlemen stepped lightly into
Warren's carriage and held out
a small card, John vanished

Quality 15. Samples 49 and 89

lightly into Warren's carriage and held out a
small card. John vanished behind the bushes
and the carriage moved along down the drive

held out a small card. John vanished behind
the bushes and the carriage moved along
down the driveway The audience of passers-

[1] These samples are reduced one half from the Thorndike scale.

Quality 15. Samples 47 and 90

John vanished behind the bushes
and the carriage moved along
down the driveway. The audience

Then the carelessly dressed gentle-
man stepped lightly into Warrens
carriage and held out a small white

Quality 14. Samples 54 and 19

Then the carelessly dressed gentlemen
stepped lightly into Warrens carriage
and held out a small card, J

Then the carelessly dressed gentleman
stepped lightly into Warrens carriage and
held out a small card, John vanished behind

Quality 13. Samples 55, 24, and 26

Then the carelessly dressed gentleman stepped
lightly into Warren's carriage and held out a

ished behind the bushes and the car-
riage moved along down the driveway.
The audience of passers-by which had

Then the carelessly dressed gentleman
stepped lightly into Warrens carrige and

Quality 13. Sample 4

Then the carelessly dressed
gentlemen stepped lightly
into Warren's carriage and

Quality 12. Sample 30

lightly into Warren's carriage and held out a
small card, John vanished behind the bushes
and the carriage moved along down the drive

Quality 12. Samples 7 and 52

behind the bushes and the carriage moved
along down the driveway. The audience
of passers-by

Then the carelessly dressed gentleman stepped
lightly into Warren's carriage and held out a small
card, John vanished behind the bushes and the

Quality 11. Samples 23 and 45

riage moved along down the
driveway. The audience of pass-
ers-by which had been gath-
ering about them melted away

along the down the driveway
The audience of passers-by which
had been gathering about them

writing is called quality 17, illegible writing is called zero quality, and in between these are 18 qualities.

A teacher may not agree with these rankings. But since they are the opinion of from twenty-three to fifty-five different people, they are more likely to be correct than the teacher's individual opinion.

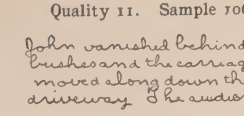
In testing handwriting by these samples, the teacher should move the sample up and down along the score card until a point is found at which the quality above is better than the sample, and the quality below is poorer. This will indicate the quality of the sample.

The values of this scale are many. Its particular and chief value is that you can make a boy compare himself with himself. This can be done in two ways at least. He can have his best hand graded and shown to be quality 12; he can then grade his natural hand, perhaps finding it to be 9. In this numerical comparison the teacher and the boy have proof positive of his degenerate habits, and a motive is furnished the boy to raise his natural hand to 11 at least. Or a second sort of comparison may be made. The boy's natural hand in September may be 8. A standard of excellence may be set for him as 9, then 10, then 11, then 12, and finally 13; for I agree with Thorndike that the time spent in raising a child's hand above 13 is probably not wisely spent.

It is, of course, possible by this grading system to compare the work of one school with that of another, or the work of one room with that of another, or to decide who is the best or the poorest writer in the school. But its best value is to set pupils to competing with themselves.

A Double Standard. It is possible to have two standards of writing. A pupil may be jotting down things

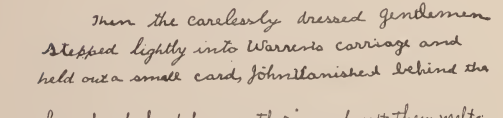
Quality 11. Sample 106



John vanished behind the bushes and the carriage moved along down the driveway. The audience

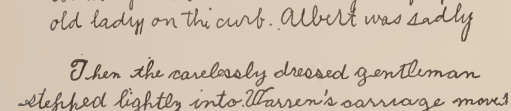
driveway. The audience of passers-by, which had been gathering about them melted away in an instant leaving only a poor old lady on the curb. Albert was sadly striding

Quality 9. Samples 31, 21, and 28



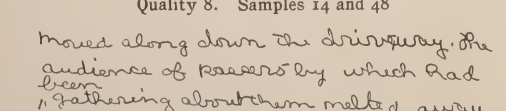
Then the carelessly dressed gentlemen stepped lightly into Warren's carriage and held out a small card, John vanished behind the

by which had ben gathering about them melted away in an instant leaving only a poor old lady on the curb. Albert was sadly

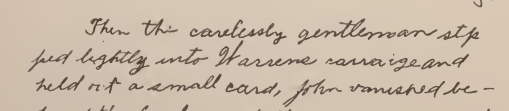


Then the carelessly dressed gentleman stepped lightly into Warren's carriage moved and held out a small card, John vanished

Quality 8. Samples 14 and 48

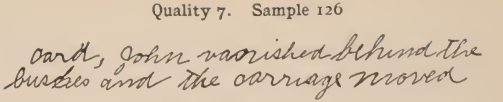


moved along down the driveway. The audience of passers by which had been gathering about them melted away



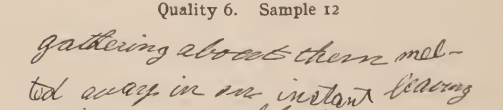
Then the carelessly gentleman stepped lightly into Warrens carraige and held out a small card, John vanished behind the bushes and the carraige moved

Quality 7. Sample 126



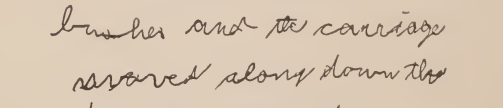
card, John vanished behind the bushes and the carriage moved

Quality 6. Sample 12



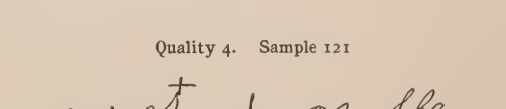
gathering about them melted away in an instant leaving only a poor old lady

Quality 5. Sample 6



bushes and the carriage moved along down the driveway ze audie

Quality 4. Sample 121



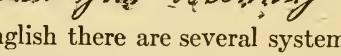
seated on the curb like my driver and

rapidly and in such a way that he has neither the time nor the inclination to write legibly. He may be getting ready to write a paper, or he may be drafting the solution to an arithmetic problem. In such cases, if the writing is not permanent, or intended for others to see, it does not matter so much about the quality of the writing, provided it can be read by the writer.

But if the writing is to be permanent, it should be legible; for a month later, when the pupil has occasion to use it again, he should be able to read it without loss of effect and poise. Or, if it is to be handed to the teacher, or read by other pupils, then it must be legible. Politeness demands that the reader be not taxed unduly, and business sense requires legibility so that mistakes will not occur. Any writing less than number 9 on the Thorndike scale is dangerous and should not be permitted except under protest.

SUMMARY. There may be two standards — the scratch-pad standard and the polite standard. A pupil should not be judged severely on the appearance of his writing when it is temporary and for himself. But when some one else is to read it, or when it saves something for himself later, it is imperative that the penmanship be legible.

Structure. The function of penmanship is, as we have said, to provide forms of letters. It is interesting to notice how these forms are constructed. Different nations have different forms. For instance, the words, *I gave him money*, appear in German script as



In English there are several systems of letter forms. The Spencerian system, which was dominant for many years, has seven elements which combine into rather

ornate letter forms. This system and other later systems have many advocates. The later forms have given us a more hygienic sitting position, and simpler letters.

But for the graded school, and particularly for the rural school, it does not make much difference which system is used. Good writers can be secured by any system. For the expert there may be a best system; but for the pupil in the grades sufficient legibility, beauty, and speed can be secured by any system.

Movements in Writing. When penmanship is taught, it has to be thought of both as a system of letters and as a system of muscular movements. For while there are involved only eleven elements in the whole Spencerian system of letter forms, there are involved some five hundred separate muscles in writing a simple sentence. The word *cat* is a very simple word, so far as form is concerned; but if you will write it out and note carefully the movements taken by the fingers, hand, wrist, forearm, upper arm, and shoulders, you will not need to be further convinced that the muscular operations are very complex.

And just as we have several systems of letter forms, so we have several systems of movements and positions in writing. The Spencerian system required for bodily position that the pupil sit with his right side to the desk. This and other requirements were held to be unhygienic; and now there are no systems, so far as I know, which do not have much the same bodily position, namely, body facing the desk equally, soles of feet resting on the floor, and paper square with the edge of the writing service.

For grade purposes the chief emphasis in bodily posi-

tion must be laid upon the freedom it gives the lungs and the avoidance of cramping positions. These are essentials, while much that the advocates of different systems argue about are not essential.

The grade teacher's situation is this: She is not going to train expert penmen of the quality of 17 in the Thorndike standards. She is anxious to make rather fluent writers whose natural hand approximates the legibility of 12 or 13.

So I am firmly convinced that the system makes comparatively little difference. The vertical system produces legibility, but so does the Spencerian system. Perhaps if either style of letters was adhered to very closely, there might be some difference in legibility; but children do not need to follow systems accurately. As long as their writing is legible, little else matters, as far as form is concerned. The point is, that by any system of writing one can make good writers. *Perhaps* one system is better than another in legibility, in speed, and in good looks; but nobody has yet *proved* that one is better; and until this can be demonstrated, a teacher is safer in using the system already taught the children than in changing to a new one.

The Course of Study. When should children begin to write? There is a stage in penmanship which may be called drawing, when the children slowly and laboriously copy the words. This drawing may begin as soon as the children enter school. Later, when considerable facility has been gained in this, special attention may be given to writing as writing. This will be in the third grade when the pupils begin writing compositions extensively. In all grades from the beginning, attention should be paid to the position of the body; and

as fast as possible the pupils should be taught the proper method of gripping the pencil or crayon.

Copy Book. Copy books should be used as reference books. They show the correct form of letters. Set exercises written in them are worth while. In such exercises the bottom line should be written first, and then the one above, so that children will not copy their own work.

However, copy books should not be the sole means of securing good writing. The best results come when the pupils' errors are drilled upon. There are two alternatives in writing drills. One is to write a page full of such a sentence as " Honesty is the best policy " in the best hand possible. The other is to study the child's handwriting and decide on some letter that needs to be improved and to practice upon that. For instance, the children may write the word *cat* thus, *cot*. This shows the need of drill upon *a*. The whole drill of one period may possibly be upon this letter, after a manner laid down in a later section. The correction of errors in handwriting is practical and will show an immediately direct effect.

Writing is like keeping one's health. Most of us know a few general health laws, and a few special facts about colds, grippe, measles, etc. With these we can keep healthy enough for all practical purposes. But we know no system of medicine or hygiene, and we do not need one for practical purposes. If health training were our vocation, we should need to have a system; but it is not, and so we do not need the system.

The parallel with writing is close. We need a few general facts about position, movement, and legibility. We need some special facts about our chief troubles,

such as closing *o's*, straightening *d's*, etc. These special facts concern our personal penmanship " diseases " to which we are peculiarly susceptible. With these in mind we can develop facility in writing a legible hand.

SUMMARY. The work taken up in the spelling drills should be dependent upon what the pupils seem to need most urgently at the time. Copy books should be used as reference books, but only a comparatively small amount of drill time should be spent upon them.

2. How to get Interest

Immediate Interest. The parallel between spelling and writing is close. The methods and conditions of securing interest are of the same type. We have, first of all, the possibility of pupils having an immediate interest in writing. There are a few such in every school. There are many more who like to write, but who do not like to take special instruction in writing; and there are a number who do not like to write under any conditions. It is these latter classes that furnish the problem of arousing interest, since, if the pupils were already interested in writing, there would be no problem of motive.

Thorndike's Tests as Means of securing Interest. The use of the score card helps materially. For instance, Susie may write poorly to-day. Her writing may be compared with the card and judged as quality 9. She may be asked to bring it up to 10. This is not so vague as asking her to do better. Perhaps Willie has been writing at 12 and drops to 10. His specimens can be compared with the score card and the differences expressed numerically. Again, the teacher may handle

the whole class by grading on a given date and telling the pupils that the whole room average is to rise to, say, 11 or 12, or to some other standard that is easily within their reach.

The incentive here is the same incentive that the corn-grower has in trying to improve his breed of corn to make it come to standard. But the task is easier because, while the breeder sees improvement only as season follows season, the writer can make improvement every day.

Mediate Interest. Again, referring to our parallel with spelling, we find that mediate interest may be secured by an appeal to generic values. We may say, "Your grade depends upon your writing; if you do not improve your writing, you will have to stay in." This is a method commonly used, and, of course, known to all our readers.

But we may, as in spelling, make our approach by way of the specific function of the subject. In the case of penmanship, the function, as we saw above, is to produce legible characters rapidly.

If the child can be shown that he is being misunderstood because he does not write legibly, then, if he *wants* to be understood, he will be careful.

You may have heard of that Chicago gentleman who decided to take his wife to the matinée, and after getting the tickets he sent a messenger to the house with the message, "I have gotten tickets for the matinée. Meet me at the, — etc." When he went to meet his wife, he found her there with eight lady guests. Drawing her to one side, he inquired the reason for this generosity on her part; and on reading again the note he had written her, he found that instead of saying, "I have gotten

tickets," etc., he had really written, "I have got ten tickets," etc. Doubtless in the future he was more careful about his penmanship.

The more frequently it can be borne in upon a class that their illegible writing is handicapping them in telling what they want to tell, the easier it will be to get them working upon their writing. A teacher should have too much self-respect to consent to read careless handwriting that is hard to read.

A Writing Hospital. A very satisfactory plan of dealing with the writing situation is found in what the children call a writing hospital. The idea is this: In the sixth to eighth grades it is felt that children write poorly, either because they do not know how to write well, or because they are careless. Both these causes are taken care of by the hospital in the following manner: If for any cause a pupil in a class does unsatisfactory writing, he is put into a special writing class. All the instruction in penmanship is given in this class. A pupil is put in because something is wrong with his writing, and he remains until he has improved. If his trouble is carelessness, a week in the class, while his more careful classmates are at work upon more attractive material, usually cures him. If his trouble is not carelessness, but an inability to write, special attention can be given to his errors and to drill upon correct forms.

The hospital can be worked by having all writing taken together for the grades from six to eight. Those who write legibly and with facility do not need special drill. Those who are erratic in their writing may be sent in at any time and remain until their written work outside comes up to the standard of the class. The test in each case should be based not on writing done in the

hospital, but on the quality of written work done during the day in every subject.

Correlation. In writing, as in spelling, the greatest gain in training comes in maintaining efficient standards in connection with other subjects. If a teacher refuses to accept illegible work in geography, composition, or history, half the battle for legible writing is fought. If the boy knows that he has to go into the hospital in the upper grades whenever he grows slovenly in his writing, he will improve wonderfully. In other words, the trouble with writing is seventy-five per cent carelessness, and the other twenty-five per cent can be easily taken care of by special instruction. Cure carelessness and the problem is solved.

Carelessness must be cured in the correlated subjects. The teacher may demand the rewriting of careless work. She may represent illegible writing as the source of awkward, even dangerous, mistakes, or as a form of impoliteness. It may be necessary to resort to low grades, or to detention after school. But at any cost carelessness must be cured.

3. How to study Writing

General Laws. The laws for study of writing are the same as those for spelling. The *first* thing necessary is that the pupils have a clear idea of the letter forms. They should look at them, and make them in the air in the early grades. They should note the peculiarities of the different letters with which they have trouble. The mistake may lie in making the *d* stem a loop, or in leaving out the down stroke of the *a*, and thus making it like *o*.

Here the copy book is of use in showing the correct form, and the teacher should also put this correct form on the board.

In passing, it may be said that unless a teacher has a legible hand himself, it is quite futile for him to try to teach children legibility. In some schools I have been ashamed of the scrawls of teachers, and have felt indignant when boys and girls who wrote better than the teacher were reprimanded for not writing legibly. It is as foolish for a careless teacher to scold pupils for carelessness as it is for a father who swears to whip his boys for swearing.

Besides having a clear idea of the form of the letter, the pupils should have clear ideas as to the proper position to take, the proper way to hold the pencil, and the proper way to make forearm movements. Unless these are clearly in mind the pupils cannot drill upon them. Infinite care should be taken by the teacher in demonstrating all the details. The pupils should be shown *exactly* how to hold the pen, and time taken to show this in detail is time well taken.

The *second* factor is attentive repetition. Exercises should be short. It is worse to allow the pupils to practice poor forms than it is to have no practice at all. Short, crisp exercises only should be indulged in.

Each poor writer's handwriting should be examined for errors, just as a patient's body is examined by a doctor for disease. Medical examinations are necessary before the doctor knows what to do. When he has found out what is wrong, he can begin to give exercises and medicines that will cure the trouble. So in writing, a specimen should be diagnosed. For instance, let us take the specimen marked as Quality 6 in Thorndike's scale,

and see what needs to be done to improve it. Careful study shows it a difficult case to handle. Some rather obvious improvements can be made, however. The letters are all present and most of the parts of letters, the only serious exception being the small horizontal curve in the *w* in *away*. The following are two points of error: (1) not written to line at bottom, (2) ovals of *a* and *d* too much worked over. There are other troubles, but these are the two needing first attention. The pupil who used this handwriting should have exercises for getting all his letters on a line at the base, and upon the formation of the oval in *a*, *d*, *g*, etc. A boy might have just one of these troubles pointed out and drilled upon at first and for some time, before a second is undertaken. Then another should be added and practiced effectively.

The *third* factor is repetition sufficient to make the movement automatic. Without this automatism much time is lost. But the results are not so serious in spelling because the forms of letters are much easier to recollect than is the order of letters in words.

4. Class Mechanics

Drill Directions. The mechanics of any class must be very simple. Where a special exercise is given, orders will expedite practice. For instance, if the oval *a* is being practiced by the group, and if the letter is divided and numbered as follows, (1) and (2) , then the teacher may say, 1–2, 1–2, getting thereby a string of *a's*, and at the same time getting more concentrated practice than would be secured through undirected practice by each pupil separately.

Orders and directions should be clear and pointed,

leaving no doubt in the minds of the pupils as to what is to be done.

Class mechanics should be as simple as possible. They should seek to give the most practice in the shortest time. If there is ten minutes for a writing drill, as little time as possible should be spent in getting ready and in putting away material; and, while the drill is on, every minute should be utilized.

Alternation. The four upper grades may have a common writing period. It may or may not be in "hospital" form. But in any case the errors in writing are so common that the exercises given to the eighth grade are just the same as those given to the fifth. As a matter of fact, the fifth-grade pupils write, on the average, a better hand than eighth-grade pupils. So all the upper grades may have the same writing periods and exercises. In the lower grades the work should be all incidental to the composition classes and to the other classes that use written work, and occasion should be taken in every class to teach correct form of both letters and movement.

But in both upper and lower grades the writing battle is won or lost outside the special writing class, not inside.

REFERENCES FOR CLASS READING

Black. *Primary Methods*, vol. II, pp. 166–83. (Penmanship in the lower grades.)
Boyer. *Modern Methods for Teachers*, pp. 121–27. (Position in writing.)
Rocheleau. *Intermediate and Grammar Methods*, vol. II, pp. 208–31. (Drill exercises.)
Thompson. *Psychology and Pedagogy of Writing*, pp. 81–120. (General.)

CLASS QUESTIONS

1. Take up two of the common systems of writing and compare in the following particulars: (*a*) slant, (*b*) forms of letters, (*c*) beauty, (*d*) position of pen, (*e*) position of body, and (*f*) kind of arm movement.

2. If you were to change the system of penmanship in a school, would you make the change in all the grades, or would you change only in first grade?

3. Take the natural handwriting in ink of twenty-five pupils and grade them by the Thorndike standards. Grade them three or four times without letting yourself compare your gradings till afterward. How closely do your gradings agree in each case?

4. As a class exercise, have other members grade to see how closely they agree with you. (As a matter of common practice, do stock judges or corn judges agree?) How would you arrive at the true rating of the specimens?

5. Diagnose your own handwriting and state what you need to do to improve it.

6. As you sit at the desk now provided for you, what is the natural angle for your paper to lie at? When writing at your table at home, what is the natural angle? Does the height of the table have any effect upon what seems to be the correct angle? Experiment with several writing surfaces of different heights. What is the significance of this for your pupils?

7. What sort of finger grip do you have in writing? What grip have you decided upon as the best? Can you keep the grip for ten minutes at a time? Try it.

8. What is your own opinion about the value of copy books?

9. Name a number of generic values to which appeal may be made in writing.

10. Do you think the appeal to the specific function of writing is really very practical? Substantiate your opinion.

11. Of what devices can you think to get the pupils to practice their writing exercises by themselves with attention and interest? Collect these devices from all sources available. Are they appeals to generic values or to the specific function of the subject?

12. Write to the Russell Sage Foundation, New York City, and ask the secretary to send you a copy of Ayres's Test Card for Writing. Dr. Ayres has worked out a score card which may be had for five cents. For class purposes it is not so good as Thorndike's test because there are not so many steps in it.

CHAPTER III

LANGUAGE

1. Subject-Matter

Function of Language. The intrinsic function of language, the purpose for which it was created and is used is (1) to communicate ideas (2) through words (3) with accuracy and effectiveness.

Language, as it is taught in the elementary school, includes spelling, writing, composition, grammar, punctuation, and so forth. Of these, each serves a secondary purpose in connection with language. All assist in the verbal communication of ideas. Grammar looks after the relation of words in the sentence, spelling attends to the order of letters in the word, writing takes care of the form of the letters, and punctuation marks the breaks in the expression of the idea by means of capital, period, comma, or question mark. Language is a comprehensive term that includes all of the others and serves as a medium through which all of the others may be applied practically to accurate and effective speech.

Language is, of course, only one medium for the expression of ideas. It uses words. Painting is another medium, a medium which uses color as its material. Sculpture uses marble, music uses sound, and carpentry uses wood. Language deals only with the communication of ideas through words.

A third part of the purpose of language as stated is to convey ideas with accuracy and effectiveness. Between these two terms there is a difference which may be expressed in this way: Of two expressions equally

accurate one may be more effective than the other. Two writers may each be accurate in expressing the same ideas, but one may be much more effective than the other. This is clearly illustrated in the sentence, *Babylon is fallen, fallen.* This sentence is grammatically correct, but by a slight rearrangement of exactly the same words we have a much more effective statement in *Fallen, fallen is Babylon.* And language study is, of course, concerned with both accurate expression and effective expression.

SUMMARY. The function of language study is to assist pupils to communicate their ideas through words with accuracy and effectiveness.

Standards of Good Language Form. The standard by which to judge language form is simple to state. A legible letter, essay, or theme, correctly spelled, properly punctuated, grammatically accurate, and with easy flowing sentences containing as much brightness as may be thrown in, is sufficient for all school purposes. It is very evident to me that no direct attempt should be made for literary form such as great artists have, an ideal advocated by some writers on the subject. It is sufficient to have the writer of essays and themes write with legibility and in conformity with the rules of spelling, punctuation, and grammar. A good clear letter is all that is necessary. The standard for oral language is the same, except that oral language is not judged by standards of spelling and writing.

Form in both written and oral composition is to be judged in the grades and in all life by the work done outside the language class. The form of the pupils' themes, arithmetic exercises, physiology notes, geography and history reports, and personal letters will

determine the quality. If these are poor, it makes little difference what sort of work is done in special classes.

Teachers complain of two things. One group of teachers says that the composition work of children is very slovenly. Some teachers say that children, when they pay too much attention to writing, spelling, grammar, and so forth, become stilted and stiff in what they write or talk about.

In dealing with both these criticisms, a double standard will solve many problems; for a teacher should allow two standards in written work. I find that most people who write anything important need to make at least a first draft and a final draft. Sometimes one has to make two or three drafts in between the first and the last. The first draft is usually very rough. It is rushed off in the heat of the idea and is backed up as the ideas crowd in upon the writer. It is not the kind of work that one would wish to be judged by. The final draft, if one is polite and neat in habit, looks very different. It is worked out with due consideration for form.

Now, the first criticism — that pupils' work is slovenly — is due to the failure of the teacher to require a final draft, legible and readable in form. The teacher accepts the first draft and complains of slovenliness instead of requiring a readable draft. The second criticism — that pupils are stilted and formal — arises from the failure of teachers to allow the pupils time for making a first draft, or to show them how to do the preliminary work. Then, of course, when the pupils have to write very legibly, and when they have to stop to make corrections, all the time fearing that they may make some mistake, they will write as stiltedly as a young man talks when he visits very precise people in unusual

surroundings and fears with every word he says that he will make some bad mistake. If the teacher would permit, and show the pupils the use of the two drafts, allowing natural work in the first and requiring careful work in the second, the content would be spontaneous, and the form careful and readable.

Course of Study. In the grades there is a sharp contrast between the organization of the course of study in language and the organization of the course in grammar. The latter is arranged rather logically. Usually there is a study of the simple parts of the sentence — subject and predicate, followed by a treatment of the elementary definitions of each part of speech with the necessary parsing and analysis. This round is usually followed by a more detailed study of the sentence and of each part of speech. The organization is " logical " in the sense that one step follows the other in systematic order, and that each step is to a certain extent dependent upon a preceding step. Of course the organization of grammar for the grades is not so rigidly logical as geometry, but in a broad sense it may be called logical.

At any rate, it is logical when compared with the organization of a language textbook for the grades. For instance, the following are fifteen consecutive topics discussed in a text which I picked up at random: —

1. Writing a fanciful story.
2. A study of the paragraph.
3. A study of spelling in a selection.
4. Writing an explanatory theme.
5. Studying and memorizing a selection.
6. Writing a fanciful story.
7. Study of errors.
8. Writing a story.
9. Writing dates.
10. Writing a story.
11. Writing a letter.
12. A study in spelling.
13. A study in punctuation.
14. A study in choice of words.
15. Addressing envelopes.

A rapid glance at this list shows clearly that there is no logical arrangement of the topics. Any other order could be as well justified.

Let me show you the secret of making a course of study in language. It is very simple in theory. There are just two things to be done. The first is to select all the facts that should be taught, and the second is to arrange them in the proper order. Whistler, the artist, was asked by a gushing admirer the secret of his success in painting. His reply was, "The secret is easy to state: Select the right colors and put them on in the right place." "Why," exclaimed his admirer, "I had no idea that it was that simple. I shall certainly go home and try it immediately." So in language, all one has to do is to select the right topics and teach them at the right time.

In selecting all the topics to be studied during eight years of language work, we should be guided by the frequency of errors. A careful study of the diseases of written and oral speech should be made. Such a study will reveal certain common grammatical errors, a lack of knowledge of such rhetorical forms as paragraphing and sentence structure, inability to punctuate, illegible writing, and a lack of spontaneity in content. When these are all totaled we will have, let us say, 640 facts that need to be taught. There are probably fewer, but I am not sure of the exact number at the present time; and, in any case, opinions will differ as to the number that should be taught. In eight years of eight months each there are eight times eight times twenty days, or 1280 days. So we shall have to teach an average of one fact every two days, thus giving ample time for drill.

When we have determined what facts we shall teach,

the next thing is to decide the order in which they are to be taken up in school. We want to know what to teach to-day, to-morrow, and the next day.

The old-fashioned text arranged such of these as were taught, in a logical manner. This made it all very simple. Teach grammar by itself, spelling by itself, rhetoric by itself, and follow as logical an order as possible. But the present language texts are influenced by a new idea, that things are best taught when the pupil feels that he needs them. This rather remarkable idea, about which we shall talk in the next section, has changed the whole order of topics.

The authors of textbooks in language try to follow the order in which they think the facts will be needed by the pupils in their efforts at oral and written composition. In so doing they claim that they psychologize subject-matter; that is, teach it at what they think is the psychological moment when conditions favor its presentation. Grammar is organized logically; language courses in the grades have a *psychological* organization.

The psychological moment for teaching a language fact is the moment when the corresponding error is occurring, or when a new process, as letter writing, is begun, and the teacher is desirous of getting things started correctly so that errors will not occur. At those points the pupils will see the relation of the language facts to their immediate problems.

Textbook makers, as you can see, do not know the order in which you should take up the topics in your classes. For supposedly they taught classes and found that the order which they thereafter presented in their textbooks was the natural, or psychological, order in those classes. But all teachers know that classes differ

very widely. The author would find that if he took the natural order in which these items occur in his own classes from year to year, there would be great differences in the order. Every teacher would find a different order with similar classes. And classes in different parts of the country would take up the topics in quite different orders. So the textbook writer cannot determine what order you will use in your classes, because classes differ in different localities and from year to year, and teachers differ.

Textbooks. Each teacher, then, in introducing language facts should not feel bound by any order except as the needs of the class from day to day seem to recommend. When a textbook is used, the order of the text may easily be changed, so that Lesson 40 will, if necessary, precede Lesson 24.

I do not feel competent to give advice concerning the details of the course of study. Each language book has its own course worked out, and other courses appear in practically all texts on the teaching of the subject. A small list of references to these, appended at the end of this chapter, shows in detail what the opinions of a few of these are. But the average teacher has a course placed in his hands by school board adoption, in the form either of a textbook or of an outline, and uses this as his basis. This plan works very well, provided the teacher does not adhere slavishly to the order of the text or outline, but takes things up in what seems to be a natural order.

SUMMARY. The course of study consists of the commonest facts of language which are necessary for reasonably irreproachable written and oral speech. These facts are in general taught from day to day, as they seem to be needed most. The organization is psychological rather than logical.

2. Motive

Our problem in language study is that of getting the children interested in language forms — grammatical facts, rhetorical rules, and information about punctuation.

Basis of Interest. Leading to the discussion of methods of doing this, there are three facts that throw much light upon the subject. These are the following. We show interest in conversation (or writing): *first*, when we are interested in the topic of conversation; *second*, when our audience is interested in it; and *third*, when our hearers do not know as much about it as we do. On the other hand, we are not interested in conversation if we are not interested in the topic, if our audience seems to be bored, or if those to whom we are talking know much more about it than we do.

A few illustrations will make this important point clearer. Last summer three friends of mine went to Sedalia and while there heard a piece of gossip about a citizen of our town.

A. When they returned, two of them rushed into my office on some pretext, to tell me the news. I had not heard it and proved an appreciative listener. Here were all the conditions necessary for a freely flowing tongue, and my friends rose to the situation.

B. After they left, another of my friends happened in, and I started to tell him the story; but he was so worried about something else that I could not get his attention — my audience was not sympathetic; so I dropped the subject and began to talk about another matter. I did n't see any use in wasting words on him when he was not interested.

C. In the course of a few minutes another mutual friend dropped in, and I proceeded to tell him the interesting episode. He said, "Yes, that certainly is great; Tom just told me about it." So again I dropped my story because I do not enjoy telling people things they already know.

D. Now, it so happened that there was one item in the story that was not clear to me, and a little later, as I chanced to see the third of the friends who had gone to Sedalia, I asked him to tell me about it. His answer was short and to the point; "You know I have n't any use for that fellow, and I did n't pay any attention to the story." So *he* stopped talking.

Here in this one illustration, we have all the three factors of interest.

In school language work frequently not only one but all of these factors are missing. The first case I shall mention is a very common one. The fifth class has just had a lesson on the artist Millet, and as a composition exercise the class is asked to write out the substance of the lesson. It so happens that this lesson is not interesting to anyone in the class. Here we have a case in which a boy writes a theme on a subject in which he is not interested, also writes it for an audience (the class, or the teacher) that is not interested and that already knows as much about it as he does. Out of school the story of Millet would not be the subject of the pupils' conversation. In the schoolroom the pupils are compelled to write about it. It is, therefore, no wonder that the written work and the oral work in schools is so monotonously poor. The children's hearts are not in their subjects. The chief reason why normal children hate language work is that some one of these factors of

interest is absent. If they are all present, children can no more help growing in language than a flower with plenty of water, soil, and sunshine can help putting forth buds and leaves.

Summary. In order to secure interest in composition work it is necessary that pupils have something interesting to talk about, and an interested audience not already possessed of as much information on the subject under discussion as is the writer or speaker.

Topics of Interest. The first important consideration is to get topics of interest to the pupils. There are many of these, but of one sort in particular I wish to speak first.

Most language facts should be taught incidentally in the grades, in rural schools. Taught incidentally, the interest will depend upon the attractiveness of the other subjects and the way in which they are handled. If they are interested in history and geography, there is one of three factors present. Very often the other two can be handled by a little ingenuity on the part of the teacher. For instance, if, instead of asking a pupil merely to reproduce on paper the story of "The Man Without a Country" after it has been read, much better results will come through a slight recasting of the assignment to this form perhaps: "Was the punishment of Nolan too hard? Why?" or, "Were the officers and sailors sorry for him? What makes you think so? Did they think his punishment was too hard? What makes you think so?" Here, by a slight shifting of the phrasing, the teacher can change a dry assignment into a living problem. It then fulfills all three conditions of interest — a topic of interest to the pupil, one in which he thinks his audience will be interested, and one in

which, since he makes up his own mind as he goes along, he will feel that his audience does not know all the facts. As a result he feels that the questions are worth discussing. In history and geography this same ingenuity produces slight changes that transform dead topics into living questions. It is a quality in teachers that is partly native and partly acquired. Newspaper men must have it, because they have to take dry facts and, by viewing them at a different angle, translate them into living news. When the reporter hands in a prosy story, the editor by a slight but subtle and skillful touch, changes it so that it excites interest. He does it, not by telling an untruth about fact, but by giving fact an interesting turn.

For the teacher this is most important, because in every subject it makes the difference between prosy and living recitations. There is only one way to get it, and that is by working for it. Directions are not availing. One has to work for the expression — the question and the turn that will do the work.

Other Examples. Besides pleasing and vital problems, there are a number of topics that lend interest to language classes. One can, with little children, get much interest for some time through letter writing. There is a fascination about putting on paper ideas that another at a distance can read, which is particularly thrilling to young children. If envelopes can be made and addressed and a play post office established, further delight and realism is added to the process. With older children, as well as with little children, a real correspondence may be carried on with other rooms and schools in other parts of the nation. In this latter case, the pupils write about the striking or peculiar things in their locality

to other pupils entirely unacquainted with these things, but who, the writers believe, will be interested in their descriptions.

What may be called superlative or unusual experiences always possess interest for the narrator and usually for the audience. The time at which we were most thoroughly frightened, the worst horse we ever broke, the hardest rabbit to trap, are things that we wish to tell about and that other people enjoy hearing. These experiences are found in the life of every boy and girl; and while he would not spend a second to tell about a horse in the abstract, he will grow eloquent in describing how he broke a horse, if that is unusual to his auditors, or in describing how he broke his hardest horse, if breaking horses is a commonplace with his audience.

Autobiographies are interest-provoking. School children occasionally want to write their own biographies, but in many cases they love to write the autobiography of a pet dog, a knife, a postage stamp, or a pair of shoes. Innumerable topics may be used; and the interest in this fanciful undertaking can, if not overdone, be used at least once a month during the eight years.

Another fruitful source of interesting material is the fund of stories of strange characters and episodes of earlier times that are to be found in any community. There are always people who know many of these anecdotes, and certain pupils may be assigned to visit them, getting some good stories and writing them up for the school.

Directions for playing a game or the description of a trip is of interest, if the game is a new one, or if the trip is one that the whole class has not taken. Sometimes when a new winter game is wanted, a competition may

be held in which each pupil in the class describes some new game (if he knows one), all descriptions to be read carefully by the class and that one to be selected which seems most interesting. If the game is not clearly explained, that fact becomes immediately apparent to the writer.

The upholding of one side or the other of a matter under class discussion furnishes the pupil with a strong motive for effective writing, because he is anxious to convince his opponents. The writer is interested; he knows that the opposition is interested, but cannot have the facts, or it would not be in opposition. He sets to work enthusiastically, therefore, to talk on paper.

Imaginary stories are in many cases very interesting. I well remember the wonderful and weird stories that my chum and I, as boys of eleven, used to make up for fun, spending hour after hour upon the exercise. There was no halting in our language or our imagery. Many people tell me that when they were in the grades they had a desire to write books and stories and would begin on them frequently. More children than we suspect have this same interest in imaginary stories. That interest should be utilized to its full extent.

These are a few suggestions for teachers, and within them the teacher can undoubtedly find material enough to keep his pupils supplied for a term of years.

SUMMARY. Interesting topics may be secured by dressing reproductions in new clothes, through letter writing, through the suggestion of superlative and other unusual experiences, in fanciful autobiographies, in local historical episodes, through debates and imaginary stories.

An Interested but Ignorant Audience. In order to be thoroughly interested himself, the writer has to feel

that his audience is interested, and that he can tell the group of persons to whom he addresses himself some things that they do not already know. Missionaries are impelled by exactly this idea. They have something that the heathen do not know, and until the audience shows interest, it is very hard for the missionary to keep on talking and working. When he gets an interested audience of learners, he preaches with more than his usual enthusiasm.

An interested audience makes one do his very best. Any one can verify this. Think how eloquently you and I converse when some one listens with interest to our stories, especially about that most interesting topic — ourselves.

To help the child feel that his audience does not know more than he does, it is well to have him read his composition to the class so that he will feel that they are his audience. If he does not read to the class, he will feel that his teacher is his audience, and he is not likely to feel that he can tell the teacher much. And the teacher sometimes fosters this feeling in inverse proportion to the amount he knows. If he does not know much outside the book, he tends to want to make the pupils feel that they cannot tell him much, because he is afraid that he will be found out. If he knows a great deal, he is aware of the fact that any normal boy or girl can tell him things of which he never dreamed.

There are some things, such as the principles and the fundamental facts of each subject, which all pupils expect their teacher to know, and ignorance in these matters lowers the teacher in their estimation. But in all the rest of knowledge outside the book, boys and girls not only are glad to tell the teacher things he does not

know, but also admire the teacher all the more because they are able to give him information.

If a boy gets into the habit of thinking about his audience, not only will he write and talk better, but he will search among the topics he might write and talk about to find those that are both interesting to him and interesting to his audience. This will help him to keep from being a bore when he grows up; for a bore is merely one who does not notice whether what he is talking about interests his audience or not, and in the absence of his observation keeps on talking.

Sometimes other schools can be made the audience for themes as well as for letters; two teachers in neighboring schools can arrange to have their pupils write back and forth on interesting topics of practical value. Again, ingenuity on the part of the teachers helps wonderfully in setting up what we know to be ideal conditions for good writing and speaking.

The audience can be used in a very definite way to show a pupil that he needs to correct some points, or to give him merited praise. After the pupil has read his paper to the class, the teacher can ask the class if they got the idea, or, if not, what seems to be the trouble. Harsh criticism should not be allowed, nor will it be given; for pupils, while frank, are good natured in this work. Nor is it a difficult thing to make the plan practical; a little care on the part of the teacher will lead them to be discriminating critics.

Summary. Written work should be prepared to be read to the class, which serves as an interested and not too learned audience. It is not necessary that everything written be read to the class. It is only necessary for the writer to feel that what he is writing may be read to the class.

Immediate Interest. What we have been saying in connection with an audience and a list of interesting topics is preparatory to the discussion of interest in language forms, such as punctuation, grammatical definitions, and so forth.

In this section, our query is this: How shall we get interest in all these forms of language? And the answer, in outline, is the same here as elsewhere. That is, there are three cases. Either the pupils are interested in language forms, or they are not. If they are, nothing need be done; but if they are not, then an appeal may be made to generic values, or to the specific need.

The first of these is easily disposed of. We shall suppose that they are not interested in such topics as punctuation, and therefore we must inquire into methods of securing interest.

Mediate Interest through Generic Incentives. If the pupils are not interested in language forms, we may attempt to create this interest by an appeal to such things as grades, promotion, graduation, the sense of duty, avoidance of punishment, and so forth. These motives, as we have said in the three earlier chapters in the book, are commonly used and clearly understood by the readers. The less worthy motives in the list should never be used; the more worthy should be used only when the method to be discussed below fails to work.

Specific Needs. In earlier chapters we said that the best method and the hardest to handle in securing mediate interest is to inquire into the intrinsic function of the item to be studied, and create or find situations in line with this. We know that language forms are intended to help in the communication of valuable

ideas and impressions; and if we wish to create a specific need for studying any particular form, the pupil will have to see that he has failed to convey his idea, and must be made sorry for his failure.

Now this leads us to familiar ground. If we want the pupils to be interested in forms, punctuation, rules, and so forth, the best thing to do first is to let them write on interesting topics, as first outlined above. Then if they become aware of the fact that their audience is not understanding what they are talking and writing about, they will be ready to remedy their defects and cure their errors. This brings us back to the second point — the correction of the errors that arise. If pupils are interested in writing compositions and papers, they will be glad to correct errors, especially if they see clearly that the errors keep them from being understood.

Errors we have discussed in each of the three preceding chapters. The new point we stress here is that we must have the children interested in the topics upon which they write, and we have illustrated in part what these topics may be. I have no fear of the ultimate writing and talking ability of pupils who write and talk for an interested audience upon interesting topics, provided they have a teacher who has a fine sense for correctness, and who uses each practical occasion to teach them the correct form in place of their errors, and who shows them the easiest way out of their difficulties.

Summary. Pupils either are interested or are not interested in language forms. If they are not, then an appeal may be made to generic values, or to specific needs. In the latter case the important thing is to have the children interested in what they write, and to have their errors corrected as they occur.

Correlation. The other subjects in the course of study are related to language in two ways. They provide some of the content for language lessons and furnish a place in which the language rules may be applied.

We should certainly be familiar by this time with the fact that a teacher's success as an instructor in spelling, writing, grammar, and all forms of language is to be judged by the natural everyday language of the pupils in connection with their life outside the language class. If a teacher tolerates bad language forms in any other class, that teacher is not a good language teacher.

In the rural schools, where time is so valuable, the great bulk of the language work must be done incidentally in connection with other subjects. This is, of course, true of city schools as well, except that in these the teacher has much more time for special language classes than has the teacher in the country; and, consequently, since the rural teacher has less time for special classes, the greater part of the teaching of language must be incidental.

We have spoken about the danger of using material taken from the other school subjects for work in the special language class, pointing out the likelihood of the pupils' feeling that all the rest of the class know the material and of there being, therefore, little interest or motive for writing. I refer to it here again to emphasize the important point made above; that this lack of interest may be obviated in great measure if, in the reproduction, the teacher arranges to have the reproduction solve some problem, or answer some interesting question, instead of taking the form of a prosy resumé. If this is done, reproductive work is good; if it is not done, it

is an abomination to boys and girls, and detrimental to language work.

SUMMARY. Language is essentially a subject to be taught in correlation with other subjects, particularly in the rural school where time for special classes is so short.

3. Methods of Language Study

In an effective study of language forms, two principles are essential: the pupils must be interested, and they must have freedom. The first of these we have discussed a great deal in the last few pages. The second has been partially discussed.

Freedom. To get the pupils to feel free, three things are necessary. In the first place, they must have opportunity to write their thoughts just as they occur to them without having to be bothered about ink spots or legibility. That is, the teacher should allow a first and a second draft. This we have already discussed.

In the second place, the teacher must praise good work even more than he censures poor work. One of the strangest things in teaching is the scathing criticisms visited upon pupils by teachers of English. The trouble is that ten-year-old Johnnie is judged by the standard set by Shakespeare or Emerson, when as a matter of fact he should be judged by that of the average ten-year-old boy. If this is done, he will get a mixture of praise and blame as he should. Nor should the adverse criticisms outweigh the praise, if it is possible to turn the balance in favor of the latter. If the boy is praised for good work, he will soon become proud of it, and will like to do it, and will take criticisms with a good grace.

A third factor in securing freedom is abstinence on the part of the teacher from marking every error. When

a pupil writes in the third grade he has perhaps twenty errors; in the eighth grade he has three errors. Now in the eighth grade he is better able to stand up under twenty corrections than he was in the third grade. Instead of burying a third-grade child under a mass of corrections, the teacher will do well to mark only those errors which the child is able to correct by rules learned in class. If one goes slowly, has patience, and is not too greatly concerned at temporarily passing over errors, he will win out in the end through careful attention directed to errors one at a time. In addition, this temperateness in correcting errors will incline the teacher to avoid too great harshness and will thereby stimulate freedom and spontaneity.

Organization. In addition to troubles in spelling, writing, and grammar, pupils usually have trouble in organizing what they say. In the early grades they run along without any very definite unity or coherence in the body of their remarks. But in the sixth grade they begin to get an idea of organization, and at that time the teacher can profitably show the class how to make outlines. These, as a general rule, should not be the same for the whole class. The exceptions could be in drill and demonstration lessons where the teacher shows the whole class how to do it. At other times each pupil should make out his outline for himself so that he can avoid the feeling that what he does is being done in the same way by everybody else and is, therefore, not much worth while.

There needs to be considerable assistance in organization, because the organization needed in telling a story is different from that needed in either description or exposition. But it is not wise to spend much time in

the grades in dealing with the technique of narration, description, or exposition. These subjects are complex and far beyond the comprehension of grade-school pupils. If, as was said above, we graduate pupils who write a correct letter or paper, we should be amply satisfied, even if the style is prosaic and matter-of-fact. These subtleties either are natural to the grade pupils or are not acquired by them. A plain, clear, and nicely worded composition is enough for any teacher of grade children to expect.

Oral Errors. Oral errors should be corrected if they have been noted before. If they are left till the pupil has concluded his answer, he will have forgotten the circumstances of the error. If they are corrected as soon as they occur, the pupil often forgets what he is about to say, and in many cases becomes much embarrassed. These two difficulties are at opposite extremes and have to be reconciled. To do so, it is well at the beginning to make no corrections till the sentence is finished. Then, as the correction is made from time to time, the pupil comes to have a tender conscience in connection with it; and after a while a look from the teacher, or a question, calls his attention to the error without embarrassing him; he makes the correction immediately and goes on. So, until pupils have become familiar with the error and its corrected form, corrections should not be made till they have finished the answer.

Written Errors. Written errors should be corrected, as directed above, when they have been already noted for some time in class. In that case the error should be marked by some simple scheme, probably a mark at the edge of the paper on the line in which the error occurs. Some writers say that in the early grades the

exact error should be marked and the correct form written just above. Nevertheless, if only those errors that have been discussed in class are noted, it is necessary merely to indicate that something is wrong. The pupils may forget temporarily; but they should be held responsible for remembering and should not be given this assistance. An exception to this would arise when for any reason the teacher marks errors not previously studied, in the written work of young children.

Punctuation. In general it is a mistake to require much use of the comma. There are a few cases in which the comma is arbitrarily used, and these may be learned; but beyond that it is too subtle a work and requires too much refinement in thinking to be expected of grade children. The same holds true in general of the semicolon. If a pupil can capitalize, use periods and question marks, and attend to special cases of the comma, the teacher should be completely satisfied. More cannot be expected, and insistence upon more is wasteful because it destroys pleasure in work by requiring something to be done that the pupil cannot do.

The Use of the Dictionary. The trouble with having your pupils use a dictionary is that the word they are looking up is usually defined in words that are just as unfamiliar and as difficult to understand.

For instance, in Longfellow's " The Old Clock on the Stairs," these words occur: —

> The horologe of Eternity
> Sayeth this incessantly,—
> "Forever — never!"

I have just looked up the meaning of the word *incessantly* in a small dictionary commonly used in schools and find it to be, *in an incessant manner, with constant repeti-*

tion. But the meanings are just as unfamiliar to the average pupil as the original word. It is unfortunate that we do not have a dictionary for the grades which, instead of being a skeletonized pocket edition of a great dictionary and much harder, therefore, to read than the larger one, would give the meanings of words in simple, if not quite so exact, language. At present, with dictionaries as they are, it is hardly worth while to try to do much with them before the sixth grade. However, this is only an opinion, and opinions differ.

Paragraph. The paragraph is a rather difficult thing for little people to understand. The reason for this is that paragraphing requires ability to get perspective among thoughts. Each paragraph has a central idea, — or theme, topic, or subject, — but contains in addition some subordinate ideas and sentences. To very young children the idea that strikes them is the important one. For instance, take this paragraph: —

> He too is dead — he who, never having been born, we had hoped never would die; not that he did, like Rob — "exactly die"; he was slain. He was fourteen and getting deaf and blind, and a big bully of a retriever fell upon him on Sunday morning when the bells were ringing. Dick, who always fought at any odds, gave battle; a Sabbatarian cab turned the corner, the big dog fled, and Dick was run over — there in his own street, as all his many friends were going to church. His back was broken, and he died on Monday night with all his friends about him.

Now evidently the central idea here is the method by which Dick met his death. This is what an adult reader might say. But if this were given to fourth-grade boys and girls, and they were asked what it is all about, the answer would depend upon the content of the pupil's mind and not upon the content of the paragraph. To

one boy the big idea there — that is, the striking idea — might be *Dick gave battle;* to another, *Dick was run over,* and to a third, *a big bully of a retriever fell upon him one Sunday morning.*

However, in the sixth grade the children are getting maturity and paragraph sense. If the matter is not taken up till then, they can become quite proficient in picking out the big thoughts in paragraphs in geography, history, and other school subjects. Earlier than this it is, on the whole, a waste of time. With little children, all they write is one paragraph. They can learn the conventional way of beginning a paragraph, indenting the first line, but when they have done this they write to the end of what they have to say. They have no idea at what points to divide what they have to say into paragraphs; and if the teacher insists upon paragraphing, they either make each sentence a paragraph, or make the paragraph by guess.

From the sixth grade on, the paragraph idea may be taught in the reading material of other subjects. The class may be asked to name the big thoughts in the lesson or in a paragraph. To this the most serious handicap is the very poor paragraph structure of many school textbooks out of which the children have to study. To meet this, the teacher has no way except to give more assistance at those particular points.

A second way to teach the paragraph idea is to have the pupils take one idea and write a paragraph upon it. Then, in correction, the paragraph test should be made. That is, the pupils should go over the paragraph so written to see if every sentence bears on the central idea. In the seventh and eighth grades a great deal of interest grows from this exercise.

Drill on Language Forms. From all the foregoing it is evident that drill plays a very important part in language work. In many cases the problem is to get the pupils to supplant bad habits by good; and in others it is to set up new good habits.

The *first* point necessary is to have a clear initial impression; the *second* is to have attentive repetition; and the *third* is to continue this repetition until the habit becomes automatic and quite familiar. Let us first take up the matter of a clear initial impression.

When Willie Smith, who as yet does not study grammar, says, " He don't know," one way to handle the case is to say, at once " Willie, you must say, *He does n't know*," and Willie may repeat and say, " He does n't know." But in addition it is wise to save this expression for a class recitation and spend time enough on the subject to make it clear. Several sentences may be put upon the board thus: —

I don't know,	You don't know,
He does n't know,	They don't know.

Now, if the class knows nothing about grammar, the teacher cannot talk about third person singular, agreement, and so forth. But he can have the pupils repeat these short sentences, noting that with *he*, *does* is always used. This is an individual fact to be remembered. It may be amplified by the following inductive process: —

The boy does not go. The man does not want it. The girl does not like to go. Boys do not go. The men do not want it. The girls do not like to go.

From these sentences the pupils may be led to get the feeling that where " it is just one," *does* is used, but where " it is more than one " *do* is used. This should be

followed by the rapid use in class of a number of illustrations containing *do* and *does*, some of which should be given by the teacher, but the larger number by the pupils. This is important.

This very brief outline is suggestive merely. It illustrates what is meant by making the initial impression clear. Both time and patience are necessary in order to have the pupils see just what is expected of them.

4. Class Mechanics

The mechanics of handling language work in class has been discussed incidentally at several places in this chapter, and at this point it is necessary only to amplify.

Oral Language. In incidental language work where children recite in classes in other subjects, or where they recite in the special language class, two points should be borne in mind. *First*, every opportunity should be given to allow pupils to make long answers. This does not mean that pupils should not talk to the point. It does mean that care should be taken to ask questions that require extensive answers. What is known as topical questions should be given. Teachers sometimes from nervousness, and sometimes from I know not what, constantly ask little, choppy questions, using fifty, when probably ten would be more efficient. Choppy questions require only abbreviated answers. *Second*, corrections of points already studied should not be made until the pupil has completed what he has to say, except where the error is of sufficient familiarity to be called to his attention, and corrected without distracting his mind from what he is trying to say.

Written Language Work. In written work corrections

should be made on the margin, preferably, under conditions just mentioned. After the papers have been handed back to the pupils for correction, care must be taken by the teacher to see that the corrections are made by the pupils. This is not a difficult task in rural schools because the classes are usually small and not much time is needed to cover all the papers twice. Members of the class may write the composition on the board before the class period so that they will all be ready to study when the class begins. This is possible only where there is plenty of board space.

Many of the pupils' compositions, both in special language classes and in other subjects, should be read to the class. Thus each pupil feels that he is writing for the class and becomes conscious of an audience. This, however, will give no test for his writing, punctuation, or spelling, and so the blackboard writing is of use in showing his skill in spelling and punctuation.

Alternation. If grammar is taught in the eighth grade only, language may alternate in the sixth and seventh grades, and in the fourth and fifth grades. Below the fourth grade, if there is any class that is called a language class, the differences in the development of the pupils are so marked that alternation is not advisable. If grammar is taught in the seventh and eighth grades, it is possible to alternate in those grades. The fifth and sixth may alternate, and possibly the third and fourth. But the best plan for alternation is the one first mentioned — teaching grammar only in the eighth grade and grouping grades four and five, and grades six and seven, for the purpose of alternating in language.

REFERENCES FOR CLASS READING

ARNOLD. *Waymarks for Teachers*, pp. 123–38, 143–51. (Written work, pictures, and stories.)
BLACK. *Primary Methods*, pp. 125–43. (Primary language work.)
CHARTERS. *Methods of Teaching*, pp. 63–72. (Function of language forms.)
CHUBB. *The Teaching of English*, pp. 106–16. (General.)
COOLEY. *Language Teaching in the Grades*, pp. 5–48. (Language and literature.)
MCMURRY. *Special Method in Language*, pp. 103–39. (Illustrative lessons.)
ROCHELEAU. *Intermediate and Grammar Methods*, pp. 249–96. (General.)
SANDERS. *Management and Methods*, pp. 196–205. (Interesting topics for language work.)

CLASS QUESTIONS

1. Give five examples to show that by a slight rearrangement in the order of words, a grammatically accurate sentence may be made more effective.

2. You, as a student, undoubtedly use a first draft in writing anything important. Is it neat? Should any standard at all be set for neatness for yourself? For pupils?

3. Examine four language textbooks and compare the order in which they take up topics.

4. What are the arguments in favor of your using a textbook in language work?

5. What are the weaknesses connected with the use of a language textbook?

6. Suppose you ask a class of country pupils to write a "composition about a cow," and find that the pupils have written about twenty or twenty-five words. Why did n't they write more? Give five different topics on this same subject that would produce more interest and result in better compositions.

7. What are the weaknesses in using reproduction work as a basis for compositions? How can these weaknesses be obviated?

8. Give instances showing the loss of interest in a subject (1) because the audience did not prove to be sympathetic,

and (2) because it turned out that the audience knew as much about the subject as did the speaker.

9. Name the most interesting things that you think you could write about.

10. Is a teacher justified in showing a seeming interest in everything the pupils say, when in reality she is not interested? Why?

11. Suppose you were going to fit language instruction to the errors of the class. What would be five topics you would take up with the class you are now in?

12. Should a teacher who does not use grammatical English be given a certificate to teach? Why?

13. If such a rule were made and enforced, who among your friends would be eligible on that point?

14. Do you think a teacher could get along without a special language class in a rural school where time is important, if he paid attention to the language of the pupils and corrected it in the other subjects? Why?

15. How frequently do you use the colon in your own writing? The semicolon?

16. How old were you before you were able to handle the dictionary with any practical success? Is the date set in the text too late?

CHAPTER IV

GRAMMAR

1. Subject-Matter

Function of Grammar. The difference between the object of teaching language and that of teaching grammar is this: in language we teach correct grammatical forms, and in grammar we explain why they are correct.

Some people become quite heated when they discuss the function of grammar, because there are such radical differences of opinion upon the subject. One group of people says that the function of grammar is to enable one to speak correctly; to train boys who say "They ain't" to say "They are not," and to explain why the latter is correct. But another group asserts that grammar is studied to explain the structure of English. Grammar, say these advocates, is a science that helps us to understand the sentence, to know why we speak as we do; but as a science it is not concerned with the art of speech. For a science and an art differ in this, that a science helps us to understand, but an art is concerned with doing. The science of human speech explains why we speak as we do; the art of human speech, speaks.

These two groups of people quarrel constantly. The scholarly grammarian who likes to study grammar holds that it is a science and is not concerned with making people speak correctly. Many teachers hold the same view and make no attempt to apply the rules of grammar to the speech of the children.

The other group holds that a university graduate or a high-school graduate may be justified in studying gram-

mar merely as a science of speech, because every man has a right to study anything he likes. But the members of this group say also that the only excuse for teaching grammar, at least in the elementary school, is the improvement of incorrect speech. These opponents claim that there are a great many things of more importance for the boy and the girl in the grades than a little knowledge about such a very abstruse and difficult subject as grammar, unless it is to be used in making pupils use correct English.

I belong to this second group. For I see little use for the study of grammar in the grades except as an aid in correcting speech. But to make the whole position clear let us approach it from another angle.

As you remember, the function of spelling was to arrange letters in words. The function of grammar is to explain the relation of words in a sentence. With the order of letters in words, grammar is not concerned; it investigates the relations of words in sentences. These relations are given such names as subject and predicate, noun, verb, phrase, etc.

If grammar studies the relations of words in sentences, some boy with a dislike for the subject may ask the use of knowing about the relation of words in sentences. Why study about nouns, pronouns, predicates, and verbs?

Two answers are usually given. One of these says, If you use incorrect forms, educated people will make fun of you. This ridicule is not always expressed by a smile or a laugh or by a spoken word, but it is registered inside. The person who knows better and hears a mistake in grammar notices it even if he does not make any sign. He says to himself, " This person is a rather crude or

careless individual." Many teachers fail to get high positions because they make grammatical mistakes. Sometimes a teacher makes more mistakes than his pupils, and then the pupils make fun of him and he loses his influence.

Since, however, ninety-five per cent of all children and teachers come from homes or communities where incorrect English is used, nearly every one has before him a long, hard task to overcome habits set up in early life before he studied language and grammar in school. In fact, it is not an uncommon experience to hear university professors make mistakes in grammar, not because they do not know better, not because they do not try hard to speak correctly, but because when they were little boys they lived with people who spoke ungrammatically and from whom they learned wrong forms. Such people are exposed to the ridicule of those who notice the error, and the only way in which they can cure themselves is by eternal vigilance and a study of English grammar.

The second reason for studying grammar is that we may know how to select the correct forms. For instance, Willie Roberts is in the habit of saying " Him and me is going." Teacher corrects Willie over and over, in the class, telling him that he should say "He and I are going." But Willie is corrected so often that after a while he reaches a condition in which he is unable to remember which of these expressions is right. Here, say the practical people, is where grammar helps. If the boy learns the case forms of the pronouns and the rule for the agreement of subject and predicate in number, he need not depend upon a hazy memory for a correct form, but can work it out for himself. If he knows

that the nominative case for *him* and *me* is *he* and *I*, it will then be easier to remember which is correct. Herein is the essential reason, it seems to me, for the study of grammar in the grades. It shows the speaker how to select correct forms for himself.

In baseball the best managers tell their players to obey the rules of the game on every occasion. The players may feel that they can break the rules of the game once in a while and gain by it — a player may run from first to third, cutting out second, and "get away with it" when the umpire's back is turned. But the manager will not allow it because he knows that, in the long run, if one does not follow the rules, the game will punish him.

Just so in grammar. I may say "They ain't," "It 's me," "Him and I," and so forth all the time and have people understand me; but I am breaking the rules of correct speech in the talking game, and every once in a while I am sure to be misunderstood. My percentage of effectiveness will not be so high as it would be if I followed the rules. My ideas will suffer by virtue of my carelessness.

SUMMARY. The function of grammar is to assist in the accurate conveyance of ideas to others by giving due regard to the relations of words in the sentence. We use correct forms in grammar so that we may be understood and so that educated people cannot belittle our training. While grammar may be studied for itself alone in higher institutions, its only justification in the elementary school curriculum is as a first aid to injured speech and broken grammatical rules.

Standards. Two standards are set up by the two opposing sides in the debate over the teaching of grammar. One group says that a student has a good hold of grammar if he can analyze and parse with ability and

accuracy. The other group says that it does n't matter how well a person may be able to analyze and parse, he has little hold upon grammar if he does not speak grammatically. One party sets up a scientific standard, the other an artistic standard.

Which of these two is right, and under what conditions one or the other may be right, matters little to the grade teacher. For him there is only one standard that should satisfy. It does n't matter how well his pupils can analyze and parse, if they use ungrammatical language. Unless they speak accurately, their knowledge of grammar is just so much chaff.

This is a difficult standard to attain for three reasons. *First* in importance, the pupils have heard ungrammatical language all their lives and have had habits firmly fixed at home and among neighbors. *Second*, the teacher has the pupils not more than six hours out of the twenty-four, and during that time the average boy or girl does no more talking than he does in ten minutes outside school. So the teacher has very little opportunity to help him by reiteration upon the same errors over and over again, day by day, precept upon precept, and line upon line. In the *third* place, in many communities, if pupils should use correct forms they would be laughed at by the neighbors as " smart alecks " and would be dubbed " stuck-ups." To bashful country boys and girls this is a penalty so biting that it takes great confidence in a teacher to overcome the handicap.

Summary. There are two possible standards for judging the hold a pupil has upon grammar. One is skill in parsing and analyzing; the other is the ability to speak grammatically outside the grammar class. The latter is the practical working standard by which a teacher may justly judge the merit of his ability as a teacher.

Structure. We have stated the specific function of grammar as that of assisting in the communication of valuable ideas by attending to the relation of words in the sentence. Such being its function, it is interesting to note how the sentence is organized to convey ideas with increasing accuracy. There are eight parts of speech, and these are arranged around a subject and predicate. By these few elements all spoken thought is expressed. No matter what one wishes to say, he must use some of the eight parts of speech.

It is a remarkable fact, when one thinks of it, that little children express a whole sentence in one word. Two-year-old Mary says, " Milk," and means, " Give me some milk quickly"; or she says, " Hot," and means, " This stove is hot; so I had better be careful." All her sentences are single words, and yet they express ideas.

Grammarians tell us that, in all probability, when people began to use language, hundreds of thousands of years ago, they used single expressions for whole sentences, just as children do now. They did not employ subject and predicate, noun, verb, and adverb.

We have that same sort of sentence now in the interjection. When I hit my finger with a hammer, instead of using a long and accurate sentence, saying, " I have hit my finger with the hammer. It hurts, and I am very angry," I say " Ouch! " This expresses the idea.

The important point is that this single expression, which primitive men used, cannot be very accurate. So the sentence grew, just as it does with children. After the baby says " Hot " for a while, she may say " Stove hot," or " Milk hot," which is more accurate than is " hot " alone.

As time went on, each generation tried to be more

accurate, and so new elements were added to the sentence to make greater accuracy. Of these cases let me give a few examples. For instance, the adjective lends accuracy. I might say, " Buy me a hammer." But if I may use adjectives, I can say " Buy me a very small tack hammer." This gives greater accuracy by making the noun more definite. The tenses make the verb more definite. If we had only one tense form we could not tell whether our friend has been married, was married, is married, is being married, will be married, or will have been married sometime. Little children are not able to express these fine shades of meaning until they have learned the tense form.

Many grammarians have made a classification of all the parts of speech and all the forms that each part of speech undergoes in expressing exact shades of meaning. They differ among themselves in little details, but, in the main, they agree on the chief modifications.

The following is a classification of the noun, which may be accepted for purposes of illustration: —

Classes.
- Common.
- Proper.

Properties
- Gender
  - Masculine.
  - Feminine.
  - Common.
  - Neuter.
- Number.
  - Singular.
  - Plural.
- Case.
  - Nominative.
  - Objective.
  - Possessive.

The important fact to remember is that each of these items helps to make the communication of ideas more accurate. Take, for instance, the two classes of noun. Evidently it is sometimes of advantage to be able to say " John is going to the city," rather than to say " A man is going to the city." The proper name makes for greater exactness by designating that particular member of the group who is meant.

In like manner sex is a very important consideration in all life. It is fundamental, and people have to take it into constant consideration. It is, therefore, in the interests of accuracy to have separate forms for each sex. It is more accurate to say, " Men are hearty eaters" than to say " Some people are hearty eaters." *Boy* and *girl* are more definite than *children*. These examples are to illustrate how every form and part of speech has a different work to perform in helping people to be more accurate in what they have to say. And if one takes all the forms of all the parts of speech, he can show that the same principles hold true everywhere in grammar.

SUMMARY. The sentence has been developed in the history of mankind and is developed in the case of every child from a single word, which expresses an idea inaccurately, to the very complicated, but more exact form in which adults to-day use it. Every grammatical form which has thus been evolved has a definite work to perform in producing this result.

Parsing and Analysis. Parsing and analysis are not intricate and mysterious processes. Their business is to state the relations that exist between words in the sentence. Analysis takes the sentence and dissects it, or breaks it up, into its component parts. For instance, in the sentence *The King of Spain may come to America in June*, analysis proceeds to state subject, predicate, modifiers, etc., as follows: —

Kind of sentence — simple, declarative.
Subject — King.
Modifiers — (1) the, (2) of Spain.
Predicate — may come.
Modifiers — (1) to America, (2) in June.

Here the sentence is broken up into its smaller groups, and the relationship of each is shown. These groups are sometimes phrases, as *of Spain, in June*, etc. They may be clauses, as in complex and compound sentences; and, of course, they may be single words, as *King* above.

Parsing simply carries this process one step further. In an analysis we make a rough dissection, while in parsing we make a minute dissection showing the exact relationship of each word in the sentence. For instance, in parsing the sentence given above, we would carry it through in a thorough-going manner by beginning with *The* and taking up each word as we go along.

For the one who is to parse every word, analysis is just the first step in which the words are roughly sorted into groups ready and waiting to be sorted more carefully in the parsing process.

Diagramming. In analysis and parsing, people sometimes use devices when the matter is to be put upon paper. When I was taught analysis, I used the form that I have just given above. Other people use other devices, and a great many have used and are using diagrams.

Strong objections are urged against diagramming; but it is a handy device when used in moderation. It saves time. I shall give no advice upon the kind of diagram to use, except to say, first, that it should be as simple as possible, and second, that it should not be used

exclusively. For the ideal to which we should strive to attain is to be able to analyze mentally as we read along. In so far as analysis is carried on, it may be diagrammed, or given orally, and sometimes it should be written out after a form similar to the one given in connection with the sentence above. Care should be taken to see that no pupil uses the diagram mechanically or juggles with the form without understanding the process.

SUMMARY. Parsing is the process by which we state the relation between words in the sentence. Analysis is the first step in parsing, in which the sentence is broken up into groups of words preparatory to parsing. Diagramming is a device for saving time in analyzing and should be used, but with reasonableness and care.

Course of Study. There are two important questions to consider in dealing with the course of study in grammar: When should grammar be taught? and What should be taught?

The first question to be settled is what we mean by grammar as distinguished from language. The answer is as follows: We teach grammar when we *explain why* we use certain forms in language. Thus, since it is possible to use correct forms without explaining why they are correct, it is possible to teach language without grammar. When the teacher says to a pupil "Do not say *He ain't*, but *He is not*," he is teaching language. When he makes the pupil understand that he must say *He is not*, because the verb agrees with its subject in person, he is teaching grammar.

Time to Begin. Our first question is, therefore, In what grade shall the teacher begin to teach the terms of grammar so that the pupils can explain why certain forms are correct and certain other forms are incorrect? Opinions and practices differ. Some writers advocate

the beginning of grammar in the fifth grade. Most writers think that the seventh grade is best. I once had a teacher who was a particularly strong grammar teacher. Before 1906 she had taught grammar for several years to pupils who had begun it, some in the fifth grade, others in the seventh grade. In 1906 we decided to teach grammar only in the eighth grade. Accordingly the course of study was so arranged that when the pupils reached her in the eighth grade they had had no grammar. She taught them all their grammar in one year. The significant fact about the experiment is this: that after trying the plan out with two classes, she told me that she secured better results, that her pupils who had studied grammar for only one year knew more grammar when they left the eighth grade than any class that had begun the study of grammar in the seventh or in the fifth grade.

Here are only two classes and the opinion of one teacher, but this method is established on a sound theoretical basis. It is possible for a subject to be started before pupils are old enough to understand it; and if it is started then, they never get it straightened out in their minds. It is always hazy and misty. But, if it is left until the pupils can understand it, they will learn it easily and will get a clear grasp of it.

It is undoubtedly better to begin grammar in the seventh grade than earlier. If, in the language books, lessons in grammar are given for the grades lower than the seventh, they should be omitted. Attention to them before the seventh grade is not only a waste of time, but a positive damage to pupils; and in every case the grammatical items should be blue-penciled and omitted.

There is only one reason for teaching grammar in the

seventh grade instead of leaving it till the eighth, and that arises when there is a danger of pupils not remaining in school through the eighth grade. But in the country more and more stress is being brought to bear upon boys and girls to have them graduate from the eighth grade. Because of this, and in view of the advantages of being able to defer such a technical subject as grammar to as late a date as possible, teachers should, if they can, leave the study of all grammar till the last year of the grades.

Prior to the seventh grade, pupils can very easily pick up incidentally the names of some of the simple parts of speech. If it is done incidentally and not forced on the pupils, it is probably a good thing for them to be able to recognize a noun and some of the other parts of speech by name. But if any effort is made to *make* the pupil learn this, the acquisition will be unnatural, artificial, and harmful.

SUMMARY. Formal grammar should be taught preferably in the eighth grade only, and in no case below the seventh grade.

What should be taught? Opinions differ as to the amount of grammar to teach in the grades. One well-known writer says it would be wiser to let grammar shift for itself and to throw the whole emphasis upon language work. Many textbooks in grammar contain a relatively complete statement of grammatical facts, setting up as their ideal that the children should be able to analyze any sentence and parse any word in it.

The amount of grammar facts to be studied is determined in the case of most teachers by what is in the text they happen to use. If the text has just a few facts, just a few facts are taught; if the text is full, the full list is taught. Teachers do not omit much because they

think that what goes after depends upon the previous lessons, and anything missed keeps the pupil from understanding what follows. They add little not found in the text, because there are no drill exercises for the added items.

A teacher has to depend upon the text to a considerable degree, but to not nearly so great an extent as the foregoing arguments would make us think. It is very practicable to omit many parts of the text in grammars that have too many minor facts in them.

The first thing to do in deciding what to teach is to find out what are the common errors made by the people in the community where you teach. Then, the second thing to do is to pick out those parts of grammar that will explain how to correct these errors. A very simple process is this, as one can readily see.

Let us try to see how this works in a few cases. Suppose the common errors are such as *They ain't* and *I seen him*. Here we have some facts that should be taught. The pupils, to correct *They ain't* and know why the corrected form is correct, would need to know subject, predicate, and person and number in verbs at least. To correct *I seen him*, they would have to know the principal parts of verbs and the tense forms. Here we have person, number, tenses, and principal parts of verbs, and the agreement of subject and predicate as important things in grammar.

If the teacher makes a careful canvass of all the common errors, he will find that a pupil must know all the parts of speech, — noun, pronoun, verb, etc., — and must know the main facts concerning the sentence; but there are only a few additional facts, such as parts and conjugations of verbs, comparison of adjectives, and

case endings of pronouns that are essential. All told, there are not very many facts that need to be known.

Those few facts, however, need to be well known. The case endings of pronouns, since they determine the use of *he* and *him*, *she* and *her*, *I* and *me*, need to be very well known — so well known in fact that children will not forget them. So also the parts of verbs, the learning of which will obviate *I seen* and *I have saw*, need a great deal of drill, repetition, and reference. Such subjects as the nature of abstract nouns and the adverbial objective complement may very well be omitted, since, while interesting as information, and not without value in training the memory, they are not so useful as are some other facts in securing a command of good English.

The foregoing, I am sure, is the only basis upon which practical grammar work can be done in the common schools.

In such a plan, parsing and analysis would have a place. As a basis for understanding the especially important facts of which we have just spoken, the pupil needs to know the simple common facts of grammar. And he should be able to analyze easy sentences and parse ordinary, easy words. It is both absurd and criminal to expect that an eighth-grade pupil should be able to take any sentence anywhere and, after analyzing it, parse its constituent words. Some teachers whose hobby is grammar, expect this, but wise teachers do not. No teacher can train average pupils in the eighth grade to do this. If the pupil can parse the words in those simple relations in which he makes mistakes, and ninety-five per cent of his errors are of a simple sort, he has acquired all the knowledge of grammar he needs and all the knowledge that should be expected of him.

SUMMARY. The course of study in grammar should be composed only of the very simplest facts, and particular attention should be paid to those parts of the grammar that explain how to correct common errors and give the reasons for the correct forms.

2. Motive for Study

Immediate Interest. The same classes of motives that work in spelling and penmanship will work likewise in grammar. Children may be interested in grammar just because they like it for its own sake as a subject to study. That is, they may have immediate interest in grammar. Or they may not like it, and any interest that they have must be mediate. In getting interest there may be an appeal to generic values, such as grades, approbation, and so forth, or to specific needs for the subject, depending upon its function. These possibilities we shall take up one after the other.

The most striking fact about grammar is that almost every child dislikes it, and this is true particularly of the boys. It is one of the "hard" subjects for children; and only by the greatest effort can they be made to study it through an appeal to grades, force, or detention.

Why do we find such a deep-seated and far-reaching dislike to the subject? The answer is easy. It is not because grammar is *really* uninteresting, but because the book and the teacher take grade children into the subject too far.

Let me find an illustration to show how taking a person into a subject too far kills interest. A little boy of fourteen was very fond of learning about botany. He read all the stories about flowers and plants that he could find in the "Youth's Companion" and used to ask his friends for more. But when he studied botany in the high school, all his interest disappeared because they

gave too many Latin names and talked too much about cells, cytology, and other little things for which he could see no use. A young friend of mine was very fond of dabbling with watercolors till he had to take painting in school under a teacher who taught him so much about perspective and masses and details that he could not have any fun in painting.

Grammar would be as well liked as any other subject if the pupils were not rushed into hard examples and artificial distinctions. Keep the boy in the simple forms and give him simple analysis and parsing, and he will not dislike the subject so much as he does now. Liking at the expense of too great simplicity is not to be advised; grammar should not be made too easy, because, if it is, the boys will not like it. It ought to be hard *enough*, but no harder; and it is now very hard for seventh- and eighth-grade boys. Unfortunately, teachers have become so used to its difficulty that if they made it so simple that they were ashamed of its simplicity, it probably would not even then be quite simple enough.

Mediate Interest. If, after every effort to make grammar as simple as possible, it should still remain uninteresting, — not liked for its own sake, — we have recourse in school to certain generic values, which we have discussed in earlier chapters. These incentives are the same for grammar as for spelling and penmanship. If Johnnie does not like grammar, we may say to him, "You cannot be graduated if you fail in grammar," or "You *must* learn this lesson, or —" Here we hint at some obscure punishment, which is all the more stimulating for being nameless. This is the common method of securing interest, a borrowed interest, in the

subject; and, since it is common, it does not need to be discussed at length. Sufficient it is to say that these generic values are good things to use when everything else fails, but they are misused if they are used all the time.

Creating a Specific Need for Grammar through Composition. We have recourse to one other type of incentive in getting interest in grammar. We first find the intrinsic function of grammar, and then find situations in which something we want to do fails because grammar is not made to do its duty. This is just what we do in spelling and in writing.

The intrinsic function of grammar is to assist in conveying values by means of sentences and words. Whenever, because of faulty grammar, we cannot communicate accurately things we are anxious to communicate, we shall feel our inability and be willing to study grammatical forms. Whenever we want to tell something very much and get all mixed up in the telling because of poor language forms, we will study grammar.

The first thing necessary, then, is for the pupils to work on interesting material. They must see an object in their language themes and history assignments; and they need, too, to see actual cases in which people have not understood them because their grammar was incorrect.

Now, unfortunately, in school, children do not always feel that their themes and their oral reports are of enough value to make them worry any if what they write is not understood. And, unfortunately too, a lenient audience may guess at what the ungrammatical sentences mean and will not, therefore, make the child realize his failure

to use correct grammatical forms. It is too bad that these are the conditions; but they are, and we have to meet them.

In the face of this situation we ought to try to make language work as interesting as possible by methods such as were outlined in our last chapter, and should try to make not only grammar but all subjects as interesting as possible. Along with this, two or three devices for creating a need may be used.

First, even though a teacher may be able to guess at the meaning of an ungrammatical sentence, as "We-uns wants some chalk," he may say, "There is no such sentence in any grammar. I don't know what you mean; so you must speak correctly." That is, the teacher may pretend that he cannot understand ungrammatical sentences. This, then, may become an incentive to the study of grammar; the teacher and the pupils study to find the rules that will tell what is the correct form. This has to be used with care and tact, so as not to offend parents in communities where ungrammatical language is commonly used.

Second, errors in written work may be collected by the teacher and kept on file for use in making the pupils realize their shortcomings. For instance, just before time to take up the case endings of pronouns, a series of sentences may be put on the board as follows: *Her and I, It is me, Who did you speak to?* etc. This list may be some time in the assembling. But with all of it on the board at one time, the teacher may ask, "Is *her and I* correct? Is *It is me* correct?" etc. Some pupils will know; others will have forgotten. Then the lesson will be well introduced by the teacher's explaining that to-day's lesson gives a rule for deciding which form is correct, so

that the class may know and will not have to remember mechanically.

Some people object to putting incorrect forms on the board. This is wise in the language class, but there is no danger in the grammar class because at that time the rule for correcting is to be studied.

Just as fast as we can make pupils ashamed of themselves for making errors, we may hope for improvement; and in causing this shame, we may either get them to realize that they cannot be understood, or we may fall back upon the decorative use of grammar — we may try to build up an ideal for correct speech as a means of marking us as educated people.

In many communities it is hard to get children to realize that they ought to speak grammatically; and in some cases, as was mentioned above, any one, except the teacher, who speaks grammatically is considered "stuck up." But in spite of these handicaps, the teacher who can himself speak grammatically (and I have heard in teachers' meetings some of the most ungrammatical language I have ever encountered anywhere) should strive persistently and patiently and enthusiastically to set up ideals for correct speech. This she does in language work. As a motive for grammar study she uses it when the pupils are looking for the rule that determines the correct form in any given situation.

SUMMARY. Pupils do not like grammar because the teacher goes into the subject too deeply. If immediate interest is not present, appeal may be made to generic values, such as grades and detention, or a specific need may be aroused by making the pupils conscious of the errors in their written and spoken language. Every effort should be made to utilize this last method; and when it fails, recourse may be had to generic values.

Correlation. All that has been said about either the function of grammar, or the methods of arousing a need for it, implies that correlation is advantageous and necessary. The standard by which we judge one's hold upon grammar is the ability to speak grammatically in the composition, history, geography, and arithmetic classes. The study of grammar avails nothing apart from correlation with these subjects. Every lesson is a language lesson and, after grammar is studied, every lesson is a grammar lesson.

There is a sort of correlation, however, that is disastrous. There are teachers who make a correlation with literature by having the pupils use the literature selections as grammar exercises. The prettiest poem in the language becomes for these people nothing more than a series of grammatical forms to be parsed and analyzed. Now this is criminal. Only under one condition may grammar be correlated with literature; that is, when the meaning of an abstruse passage will be made clear by analysis, and this need does not present itself very often.

3. Learning Grammar

Grammar consists of a series of rules and definitions. This makes it a good subject for the inductive method — a method not always used in teaching grammar. In fact, it is more common to use the other method.

Telling. One of the commonest methods of teaching grammar is as follows: The topic is the definition of the adjective as a word that makes the meaning of the noun more exact.

Teacher. I have put these sentences on the blackboard: —

The largest green book is on the table.
Alfred was the greatest king of England.

The words *largest, green, greatest,* are called adjectives, because they modify a noun, or make its meaning more exact. Now what part of speech is *largest?*

Answer. An adjective.

T. Why?

A. Because it modifies the noun *book.*

The other words having been taken up in the same way, the teacher gives new sentences containing adjectives, and has the pupils pick out the adjectives and parse them.

It is to be noted here that the teacher gives the definition to the pupils and then drills them upon it until they have it fully memorized.

The Inductive Method. There is, however, another way in which we may approach this subject; namely, by the inductive method. This method has the advantage of helping the pupils to find out the rule for themselves instead of depending upon the teacher for it. The teacher does not tell the pupils, " These are adjectives because they modify nouns." Instead, by means of suggestive questions, she guides them in their thinking until *they* are able to tell *her* the function of the words.

This method is called *inductive,* because by it a definition or rule is discovered by studying some particular cases to which the rule applies. This is the common characteristic of the inductive method. For instance, I wonder what the Japanese are like. If I use induction, I study a large number of Japanese men and women (particulars) and by comparing all these I draw the generalization, perhaps, that the Japanese are a courteous race. There are three steps — *presentation of particulars, comparison,* and *generalization.* One always finds these three steps in induction.

Now if we apply this to grammar, we may, in like manner, by presenting particular cases, draw from them the rules or definitions for ourselves.

The first thing to do is to decide on the definition to be taught and the exact words that are to be used in it. Let us suppose that it is this: —

A pronoun is a word that stands for a noun.

The next thing is to decide what the pupils already know and what they will have to be told. They do not know the word *pronoun*, but they know the meaning of all the rest of the definition.

Next let us proceed to have them find this rule for themselves with as little help from us as possible, remembering that if we use induction they must find the rule by considering particular cases of nouns and pronouns. The teacher may do this by putting on the board a number of sentences, such as these: —

1. Mary went home, but Mary returned later.
2. I respect the man, but I fear the man.
3. John priced the auto, but did not buy the auto.

When this has been done, the lesson proceeds as follows: —

4. *Teacher.* Read these sentences. Do they sound right? What changes would you make? *Answer.* Change *Mary* to *she; the man* to *him;* and *the auto* to *it.*

The teacher does this on the board by drawing a line through each noun and writing the pronoun above.

5. *T.* What part of speech is *Mary? A.* A noun.
6. *T. Man? A.* A noun.
7. *T. Auto? A.* A noun.
8. *T.* What does *she* do? *A.* It stands for the noun *Mary.*
9. *T.* What does *him* do? *A.* It stands for the noun *man.*
10. *T.* What does *it* do? *A.* It stands for the noun *auto.*

11. *T.* What does each of the words *she*, *him*, and *it* do? *A.* Each is a word that stands for a noun.

The teacher then writes on the board, *is a word that stands for a noun.*

12. *T.* Such words are called pronouns.

The teacher then writes the word *pronoun* on the board.

13. *T.* What is a pronoun? *A.* A pronoun is a word that stands for a noun.

Then follows the drill.

A word or two will suffice to explain a few points. Numbers 1 to 10 all deal with *presentation*, or the examination of the three particular cases. Number 11 leads the pupils to make a *comparison;* and number 11 is the *generalization*. Numbers 12 and 13 fix the generalization.

Note that the only thing told the pupils by the teacher is the word *pronoun*. All the rest is worked out by the pupils themselves. Note also that in numbers 8, 9, and 10 the teacher accepts answers that are almost identical in form with the generalization, number 11. If this is done in each case in the presentation, it makes comparison and generalization easier.

The inductive method is used only where rules, definitions, or principles are to be studied, and where the teacher prefers to have the pupil discover these for themselves, rather than to tell them outright. It is used by good teachers frequently when there is time and the rule is not too difficult to discover. All young teachers should experiment with this method to see how often they can use it successfully.

The Developing Method. In the lesson on the pronoun just given, we illustrated both the inductive method and the developing method. Inductive method is the

term applied to the process of discovering general facts by observing and studying particular cases. The term, *developing method*, is applied to the method of questioning by which the teacher, telling only as much as is thought advisable, leads the pupils to discover things for themselves. In the foregoing lesson nothing was told except the name of the pronoun, which could not be drawn from the pupils by questioning.

Good judgment has to be used in deciding what should be developed and what told outright. It is much better to develop and cover less ground than to tell and cover too much, because that which is developed is remembered longer and understood better than that which is told. Young teachers, instead of telling everything, should, as we have just said, experiment a little to see how well and how frequently they can develop a lesson. The rate at which such teachers gain skill in developing and using questions is surprisingly rapid.

Summary. The inductive method should be used in grammar to allow pupils to discover the rules and definitions by studying particular cases. The teacher should use the developing method in order to have the pupils discover as much as possible for themselves without the necessity of the teacher's telling them everything.

Drill. The amount of memorizing in grammar is small compared with what is necessary in spelling.

I am one of those who believe that all definitions in grammar that are worth learning are worth memorizing well. For we memorize things under two conditions: *first*, when the thing memorized is to be used over and over again; and *second*, when it is put into better words than those improvised by the user. With reference to the first, we have decided that we would teach in gram-

mar only those things which are important; and in connection with the second, it is evident to one who examines these definitions with care that they have been put into words carefully chosen, each word meaning something definite and no word superfluous, the whole idea being much more accurately stated by the author than it could be by an eighth-grade pupil. For both these reasons, therefore, it is wise to have definitions memorized.

The method of memorizing is the same as already outlined. First, be sure that the pupils understand the definition; and second, have attentive repetition till it becomes automatic.

Application. At the same time that the memorizing is going on, the rule or definition should be used in every available place. That is, it should be applied as well as drilled upon. The term *drill* means the repetition of the same thing over and over in exactly the same way. *Application* means the doing of a thing in different ways. Thus, for instance, we drill upon jumping if we stand in a spot and jump over and over again from the same place; but we apply jumping if, as we go about our business, we jump over a fence, across a stream, up a bank, and down a hillside. These are examples of applied jumping, since the same thing is done in many different situations.

In the case of grammar, we drill upon the pronoun when we say over and over again, "A pronoun is a word that stands for a noun." We apply the definition when we study pronouns in many different sentences.

In an ordinary grammar lesson, there are four different places in which applications may be made.

First, as after question 13 given above, application

to the sentences already used in the lesson from which the definition was developed may be made as follows: —

Teacher. What part of speech is *she* in sentence number 1? *Answer.* A pronoun.

T. Why? *A.* Because it stands for a noun.

T. In sentence number 2, what part of speech is *him?* *A.* A pronoun.

T. Why? *A.* Because it stands for a noun, etc.

The reader will note that by asking the question Why? the teacher elicits a repetition of the definition, and drill is secured. The question Why? also makes the pupils think and enables the teacher to determine whether they are getting at the facts or are guessing.

Second. Other simple sentences containing pronouns of increasing difficulty should be placed on the board, or examples may be selected carefully from the text. The teacher should be careful to see that the examples given are not too difficult, especially at first. Such sentences may be chosen as: "Find John and ask him to come to me." The same sort of exercise may be given as above, except that it may be made slightly more difficult by the teacher's saying, "Are there any pronouns in the sentence?" and getting the answer "Yes"; following this by the question, "What are they?" and getting from the children the answer "*Him* and *me*." Above, the teacher asked the part of speech of the pronouns after picking them out. Here, the pupils both pick them out and parse them.

As a modification of this exercise, the pupils should be asked to write down a number of sentences, found in reading or used by classmates, in which pronouns occur. The process of making up sentences is rather valueless,

because the sentences become too formal and too much alike.

Third. After the grammar lesson is over and all the seat study on the pronoun has been done, the teacher should use the children's knowledge of the pronoun whenever error arises in their oral or written speech. Here we have the crucial application. All the rest of the drill and study on grammar is merely preparatory to this application. Grammar is merely the servant of language and is not of much value in the grades except as an aid to speaking correctly.

Fourth. Occasionally in the text books in geography, history, and literature, parsing and analysis may be used when there is likelihood of their making the meaning clearer. But such applications should be made under no other circumstances.

SUMMARY. Each definition should be thoroughly memorized. Application of all rules and definitions should be sought in the speech of the children in all classes; and, as preparation and aid in this, simple exercises containing the facts defined should be worked over at the time the definition is learned.

4. Class Mechanics

Devices. Such devices as diagrams, abbreviations for names, etc., should be used to save time. But in every case the class and the teacher should agree upon the form of the abbreviation, and that form should be adhered to. Thus, if the class decides on *pro.* for *pronoun*, each member writing should use that abbreviation. The teacher should not accept *p.*, *pr.*, or *pron.* If diagrams are used, these should follow the single plan, or the two or three plans decided upon.

It is well to have a good many of the exercises in parsing written out, both because children are more

accurate and can check mistakes when they write, and because the writing of the exercises is of great help in memorizing. However, the end and purpose of all grammar is to make the pupil competent to parse on his feet and orally, when he is in doubt which of two forms to say. There should, therefore, be much practice in oral analysis.

Assignments. Two plans are followed in making assignments in grammar. The teacher may assign the next lesson in grammar — for example, the adjective — and expect the children to learn its definition out of the book. Or the teacher may lay down a rule that he will teach all definitions and rules in class, and will assign for home study exercises upon these definitions. Of these two, the latter is always preferable; for if the pupil learns the definition out of the book, he does not discover it for himself. It is told to him outright.

The former method is used widely by poor teachers. They say, "Study the adjective for to-morrow," and in the next day's recitation they quiz the pupils to see how well they have learned it. The latter method, which develops the definition in class, requires an assignment like this: "(1) Memorize the definition of the adjective. (2) Parse all the adjectives in these sentences." This is called a review assignment, while the other is called an advance assignment. So in grammar the assignments should always be review and not advance assignments, because the pupils will understand the definitions much better if they are developed in class.

Study. The study of grammar in class has been discussed. The inductive and developing methods should be used as much as possible. The seat study and the home study are very simple, because the teacher sets

the assignment quite definitely when she asks the children (1) to parse the adjectives in a group of sentences that she may have written on the board, and (2) to select ten sentences containing adjectives from conversation and books, and to underline the adjectives. These and other assignment questions are quite definite, and the pupils should have no trouble in working with them.

It is a good plan to allow pupils of equal ability to study together, provided they do not disturb the room too greatly. By way of objection, it is claimed that this practice encourages one pupil to lean upon another. This can be obviated, however, by making leaners work alone, or by setting two leaners to work together. In support of the plan it is urged that study is much more joyous, that good students stimulate each other, and that much more ground can thus be covered. The teacher in allowing it should use good judgment, and if any combination is harmful it should be disbanded. Good examples of pupils working together may be found in Colin A. Scott's "Social Education," a short reference to which is given at the end of the chapter.

Alternation. It seems to be practicable to alternate grammar in the seventh and eighth grades, in one year teaching the parts of speech and in the other analysis. However, a better plan is the one already suggested, to teach grammar only in the eighth grade, and then there will be no need for alternation. Otherwise, there should be a separate class for each grade.

REFERENCES FOR CLASS READING

CARPENTER, BAKER and SCOTT. *The Teaching of English*, pp. 144–52. (General.)
CHARTERS. *Methods of Teaching*, pp. 314–35. (Induction.)

CHUBB. *The Teaching of English*, pp. 204–24. (General.)
MCKEEVER. *Psychologic Method in Teaching*, pp. 196–207. (General.)
MCMURRY. *Special Method in Language*, pp. 130–39. (Illustrative lessons.)
SCOTT. *Social Education*, pp. 150–56, and many other pages. (Examples of group work.)
STRAYER, *A Brief Course in the Teaching Process*, pp. 51–69. (Induction.)
WHITE. *The Elements of Pedagogy*, pp. 255–68. (Suggestions about the order in which to take up topics in grammar.)

CLASS QUESTIONS

1. What difference will it make in your teaching whether you believe in the theory that grammar is studied merely to understand the sentence, or in the theory that grammar is studied to help people to speak correctly?

2. Give five examples of cases in which a meaning was misunderstood because expressed ungrammatically.

3. Give five examples in which, though the form was ungrammatical, the meaning was clear. Was the meaning just as clear to you as though it had been expressed grammatically?

4. What do you think are the most effective incentives to move boys to study grammar? Are they the best?

5. In your experience with children and your own associates, what do you consider to be the ten most common types of error in grammar?

6. What rules and definitions in grammar cover these?

7. Did you ever know a community in which it was considered a sign of "uppishness" to try to speak grammatically? If so, give some details to illustrate the attitude.

8. How can the timidity of pupils in using correct forms at home be overcome?

9. Make an outline for all the parts of speech similar to the one made out for the noun, in the text. (The methods class ought to decide upon some text to follow in this outline.)

10. Show how each item helps to make the meaning more definite (or in some cases easier to express).

11. Which of the items in this outline could just as well be omitted?

12. Take some interjection, such as *Ouch*, *Mercy*, or *Lawsy* and tabulate a half-dozen sentences that you have known each

to stand for, thus showing that the interjection is indefinite in its meaning.

13. What *form* of analysis do you prefer?

14. What *forms* in parsing do you prefer? Illustrate.

15. What scheme of diagramming have you seen used? Which do you prefer?

16. Do you recall cases in which you were helped in speaking correctly by your knowledge of grammar? If so, give five cases.

17. Do you like grammar? If so, why? If not, why not?

18. Keep a list of all the mistakes in grammar you hear in a day, writing them down unobtrusively. What is the number? Which are the most frequent? Do they agree with your list of common errors given in question five above?

19. Outline five other inductive lessons in connection with some other parts of speech, definitions, or rules.

20. What are the advantages and disadvantages of giving as an assignment for the day following that on which any rule of grammar is studied in class, the making of a list of the cases in which the pupils hear the rule violated either in school or out? Is it practical to do this?

CHAPTER V

READING

1. Subject-Matter

A LARGER bibliography has been worked out for the teaching of reading than for the teaching of any other subject. There lie on my desk before me seven volumes devoted exclusively to this subject. Not more than two or three good books can be found upon the teaching of any other subject, while some subjects have no books devoted entirely to their treatment.

The quality and effectiveness of the methods of teaching that have been worked out in connection with reading both in these books and in practice are better than those for any other subject. No other subject is, under average conditions, so successfully taught as is primary reading. No other subject has books so well adapted to its pupils as primers and first readers are. The excellent results attained in this subject lead us to have increasing hope for a similar excellence in all subjects.

Function. Reading is the fifth member of the language group composed of spelling, writing, grammar, composition, and reading. We have seen that in the great function of communicating ideas, each of these others plays its own specific and different part. In penmanship and spelling, we put ideas into written words; in language we deal with spoken words, but in reading we start with written or printed words and discover the ideas behind them.

Reading is, of course, very important. If a man can-

not read, he is dependent for his information upon what he knows, what he sees, and what others tell him. There is current or contemporary information; there is also information from the past. All the dead of all the past cannot be talked to now; therefore, if we would know the things they learned and wrote, we must read.

Nevertheless, by the simple device of putting some odd-looking signs down on paper, it is possible to record facts; and if some other person knows what is meant by each of these signs, he can look at them and tell exactly what the maker of the signs intended to say. The business of reading is to learn what these forms mean and, with that as a basis, discover the connection of the ideas in the writer's mind.

SUMMARY: The function of reading is to interpret written and spoken words and to express their meaning to an audience. The first phrase — *to interpret written and spoken words* — refers to silent reading. Both phrases taken together describe oral reading.

Structure. When the reading process is analyzed, it is found to consist of five ingredients.

First, there is the author's experience. He has something to say. What he has to say may be very simple information, as, "I was warm yesterday." It may be a command, as, "On receipt of this, come home." It may be very complex, and full of feeling, as the apostle's description of the Death on the Cross. But in any case the author knows and feels something that he puts into words.

The writer, when he is about to put his experience into writing, organizes it according to the rules of language. He may throw it into the form of exposition, in which case he organizes his points so as to present them

to the reader as he sees them. If he does this well, the organization can be easily outlined. On the other hand, he may throw it into the form of a narrative, in which case he again organizes it according to the laws and rules of narration, with an eye to the climax and conclusion.

Second, there is a series of symbols into which the writer throws his experience, whatever it may be. We in this country have inherited an alphabet of twenty-six letters combined into what are called words. It is not necessary, of course, to use these. The Chinese have a very large literature which can be read, but they do not have an alphabet. The ancient Egyptians also wrote by means of hieroglyphics. But Anglo-Saxons, in fact, all European nations, and many other people, use the alphabet which we use as the basis of their symbols.

The chief business of primary reading, as we shall see in a few pages, is to learn these symbols so that, having learned them, we may use them as tools in finding out what others have to say.

A good deal has been discovered within the last few years about the best form in which printed letters may appear on a page. We have narrow pages and broad pages; small letters and large letters; heavy letters and thin letters; and only recently has any one tried to find out which is the best for the eye.

Third. The reader has to build up in his experience the same experience that the writer had when he wrote. If the writer says, " I was warm yesterday," the reader must know what these words mean and must understand the experience for which the whole sentence stands. When Shakespeare wrote " The Merchant of Venice " he lived in imagination the experiences that he put upon

paper. To read fully, the reader must duplicate these experiences.

This, of course, is often hard to do, because the writer may be very emotional, whereas the reader may be almost emotionless. The writer may weep or laugh as he writes. The reader may get the idea, but miss any intensity of feeling, either of sorrow or of joy. In such case the reading is not the best; such a reader could never make an actor.

Fourth. After the reader has secured the meaning, has built up in himself the experience of the writer, he needs to utter it aloud. This involves the vocal organs and the whole speaking apparatus, including the tongue, teeth, palate, vocal cords, lungs, and diaphragm. A slight defect in any one of these may upset the whole reading process. A cleft palate, diseased vocal cords, or the absence of the tongue, might destroy the possibility of speech.

Each of these organs is built so as to help in the process of speech. Probably the teeth, tongue, lungs, and diaphragm were not evolved in the long history of the race to help in speech. More probably, when man began to speak, he made use of those sounds that were most effective with the organs he already had.

An examination of any text book on elocution will show that great stress is laid upon the mechanics of voice. The book in my hand, typical of most books on the subject, deals with the use of the nostrils, abdomen, and mouth, the active and passive chest, and the waist, neck, and throat movements, with breathing and the vocal cords. While these terms overlap, they indicate the extent to which a reader needs to use his vocal organs. The ability to use these well is the chief char-

acteristic that differentiates a finished reader from a tyro.

Most people do not use their vocal organs with the maximum of effectiveness. They seldom breathe correctly and usually do not articulate well. To remedy this was the great object of the early elocutionist. Frequently, correct reading was secured at the expense of the writer's meaning. That is, the reader would frequently be so trained that he would give more attention to his method of delivery than to what he was saying. But in these latter days we pay too little attention to the vocal organs.

Fifth, and finally, there is an audience to be read to. After the reader has secured the writer's idea for himself, he may then, in the complete act of reading, use his vocal apparatus in repeating the written words to others.

Just as the reader reproduces the experience of the author in his mind, so the audience reproduces the same experience. This reproduction in the mind of the audience is the whole aim of the reader. He feels that he is successful if he makes the audience see the situation as he sees it, or feel it as he feels it.

Of course, the auditor may read it for himself if he knows how to read, and many prefer to do so. But there is one advantage in listening to a good reader; that is, that the reader often understands better than the audience what the author means and how he feels, and by the inflections of his voice may help his hearers to appreciate more fully than if they merely read uninflected printed words for themselves.

The complete act of reading, composed of the five factors, is called oral reading. Sometimes a person may read aloud to himself, but that is not oral reading in the

strict sense, since there is no audience. The first three ingredients constitute the act of silent reading in which the reader gets the idea of the writer and rebuilds in himself the experience of the writer.

SUMMARY: Reading involves five factors: (1) an experience in the mind of the writer, which he organizes; (2) a series of words into which he translates the experience; (3) a reader who deciphers the symbols and reproduces in himself the experience of the writer; (4) vocal organs to be used by the reader who has deciphered the symbols and reproduced the experience of the writer; and (5) an audience to which the reader reads the experience so that the audience also may reproduce in itself the experience of the author.

Standards of Good Reading. The standards for good reading are implied in the last section. Silent reading is good reading when the reader reproduces in himself the experience of the writer. Oral reading is perfect reading when it reproduces in the audience the experience of the writer.

There are, however, a few standards that are used by critics which are in a measure dependent upon the standard just stated. These are defined by Clark as the criteria of *time*, *pitch*, *quality*, and *force*. They are dependent upon the foregoing standard because to convey the experience of the author to the reader there is a rate of reading that will do this best. This is *time*. There is a *pitch* which is best suited to the conveying of the idea. It may need to be high or low. Then there is a feeling to be nicely graduated and shifted from thought to thought by the voice. This is *quality*. And finally the idea to be expressed will best clothe itself in loud or soft tones, and thereby will exhibit *force*.

These qualities are dependent upon the standard we have set up. The following stanza will illustrate this: —

Not a drum was heard, not a funeral note,
As his corse to the ramparts we hurried;
Not a soldier discharged his farewell shot
O'er the grave where our hero we buried.

What determines the rate of reading — the time to be spent on the different words? That time will be best which will make the audience feel exactly as the writer felt. What determines the pitch of each word? Again, that which will best convey to the auditor the exact feeling of the writer. So also the quality and force are likewise determined by the same consideration.

In due time we shall deal more extensively with the methods by which these standards may be applied. But at this point we have the best opportunity to emphasize an error in the average teacher's methods of criticizing reading.

It frequently happens that after a child has read, the teacher says, " That was a little too fast," or " too slow," or " too loud," or " That was very well read, but read it again and give more expression." The point I wish to make here is that so far as the reader is concerned, such criticisms are purely mechanical and quite useless to him, unless he feels why it is too slow, or too low. To say merely, " This is too slow," is to make a criticism of no significance. Only by having the reader feel such lines as

Come and trip it as we go
On the light fantastic toe,

as something light and cheerful and not very important can we show him the need for faster time.

In judging of the excellence of reading, the teacher has two tests to apply; each of these takes the form of a question. The first is, Does the pupil actually under-

stand and feel what he is reading? This can be answered by the way in which he reads. If he reads understandingly, feelingly, he is at least understanding and feeling what he reads. The other test hinges on the question, Does he make his audience understand and feel what he reads? This is more difficult to decide, unless the teacher is part of the audience, because, while the reader is using his voice, the audience is listening and cannot completely indicate its understanding and feeling through attitude and facial expression, although it can do so in part. As a boy reads, "Not a drum was heard," etc., the teacher can determine pretty accurately from his tones how much he understands and feels. But if the teacher watches the class instead of listening to the reading, he has difficulty in knowing from mere scrutiny how much of what the reader understands and feels he is passing on to the class.

The class ought to be used as a criterion, of course, provided it is listening to a selection it has never heard before. The teacher can watch the faces and afterward ask a few well-chosen questions, which will show how much the pupils have understood. The intensity of the feeling aroused can be discovered best by the faces. This test, that of gauging good reading by the understanding and feeling of the reader and the audience is a little harder than the more usual test for the teacher to apply, but it is immeasurably more valuable for the pupils. It is much easier to decide whether or not the pupil is reading too fast or too slowly, too loud or too low; and, of course, it is much easier to make criticisms of this character and let him try again in a mechanical way. But when the mechanical change has been made, the pupil has no more to guide him in future reading

than he had before. On the other hand, when the teacher spends time enough to get him to understand what he is reading and, through him, to help his audience likewise to understand, he is learning the criterion for himself. It is easier to say, "John, read that again and more slowly" than to say, "John, you did not do that very well because you do not understand this line," and to follow up this criticism with a study of the line; but the latter is getting at the substance of the method, while the former attends only to the form.

Personally, I am of the opinion that, for grade reading, the standard ought to be set for plain rather than for dramatic reading. If a boy seems to understand what he reads, if he reads intelligently, enough has been accomplished. This means that in many selections with strong emotions little attention will need to be paid to the emotional element. As a matter of fact, many selections studied by children have emotions so deep and complex that even the average adult cannot feel them. Take such selections as, —

> Is life so dear or peace so sweet as to be purchased at the price of chains and slavery? Forbid it, Almighty God! I know not what course others may take; but, as for me, give me liberty or give me death!

This feeling is so exalted and so emphatically an adult emotion that grade children can appreciate it only very superficially. So, to try to get them to read it as Edwin Booth or Richard Mansfield might have read it, makes them artificial. I should be satisfied with their reading if I saw that they understood the selection. Any additional emotion that this or that individual reader expressed, I should gladly welcome; but I would make no serious effort to have them express emotion that is

not present. Let the pupil get into the spirit of the passage just as fully as he can with the aid of the teacher, and then let the expression of the emotion take care of itself.

Excellent teachers of reading, intelligent and well trained in the tricks of elocution, who have had much teaching experience, may safely train pupils to read with emotional expression by artificial rules working from the outside in, as well as from the inside out. But young rural school teachers and many teachers without the training I have specified should make no such attempt. They tread dangerous ways when they do more than try to get their pupils into the experience and let the expression of feeling take care of itself.

Summary. The standard of good reading lies in the ability of the reader to enter into the experience of the author, and to make his audience enter into the same experience. Time, pitch, quality, and force are all secondary standards derived from this. With rural school children, teachers should be satisfied if the pupils understand what they read and read well enough to make the audience understand. The expression of deep or complex emotions, or of any emotion, should be incidental to the understanding of what is read.

Course of Study. As we have seen above, the things to be learned by the reader are, first, to experience the meaning of the author; second, to master certain word forms; and third, to express this experience by means of vocal organs. These are the things to be taught in reading: the mastery of symbols, the appreciation of a writer's experience, and its expression to others by means of a vocal mechanism.

The question to be discussed now is, What should be taught in each grade in connection with all three of these points?

The mastery of word forms begins in the first grade. Here, as will be seen in our next section, the children learn the forms photographically; that is, as forms only, without knowledge of the letters at first. They are told what each word is. In the second and third grades they begin by phonics and by more general knowledge to recognize new words by their own unaided efforts, and possibly by the end of the fourth grade they are able to handle almost any word of which they know the meaning and many words the meanings of which they have not yet learned.

Nowadays, the study of words throughout the grades, as we shall see in our next section, is incidental to other experiences. There is little logical arrangement, except occasionally in phonic drill exercises. Each word comes in connection with an interesting thought which lies behind the word.

In reading we have one of the best examples of a psychological organization, for here, in an unusual degree, words are studied just as they are needed. No attempt is made any more to follow a set order of words. Children are given interesting stories that they love to read, and when the story is halted for a moment because a word is not understood, there is a strong effort made by the pupil to learn the name of the unknown word.

The children come to school with the ability to use their vocal cords, so all that the school has to do is to perfect their use. Formerly this was done in the grades in a systematic way. In some schools of oratory it is still done in that way, but in the grades to-day the work is taken up unsystematically. When articulation seems to be poor, correct articulation is drilled upon. When

the pupils mumble, they are encouraged to speak more clearly. When they shout, their voices are brought down to a reasonable level of force. Here again, we have a psychological organization. The mechanics of the vocal organs are developed as a need for each set of mechanics seems to be felt.

Finally, in understanding the author's experience, and reliving it with him again, there is no fixed arrangement. Stories, fables, myths, biography follow one another in no logical order. What order does exist, exists because of the feeling that the subject-matter taught should fit into the stage of development of the children taught. It is felt that a child of six years should have reading matter different from that for a child of ten or fifteen.

Stages of Development. That children differ from adults is a matter of common experience. That their interests change from year to year has been observed by everybody. That they study with the greatest success those things that are of most interest to them is a fundamental pedagogical doctrine.

Because of this, attempts have been made to mark off the child's interest by stages. If we could only know what interests are strongest in each grade we should have an easy time getting the children to work hard and intelligently. We should not want to mollycoddle them, but we could avoid teaching things of no possible interest. Unfortunately, up to date no one has made a really unassailable classification. One writer says that we can practically count upon the presence of any instinct in any grade. Others divide the years up to adolescence, which begins with the changing voice and sexual maturity in boys and girls, into three stages:

infancy, up to the time the child can talk, at about eighteen months; childhood, from eighteen months to eight years; and youth, from eight to twelve. Adolescence is defined as from twelve to twenty-four. Other writers make other divisions, and none of them is unassailable.

One particular attempt should be described very briefly, not because it is correct, but because for a time it seemed to be very useful, and still has helpful suggestions for teachers. One of these is the *recapitulation theory*, which holds that any one from conception to maturity passes through the same stages through which the race has passed from the beginning of life till now. It has been observed that the fœtus of any animal before birth passes through the lower orders in a superficial way at least. For instance, the human embryo in one stage before birth cannot be distinguished superficially from that of a fish, later of a dog. Man has evolved in these stages in millions of years, and each individual child passes through the same stages. But the child makes the passage more rapidly. Likewise, the upholders of this doctrine claim that just as the race passed through the tree-dwelling, cave-dwelling, hunting, pastoral, and agricultural stages, each child after birth passes through the same stages, only he does it in a few years instead of a few hundred thousands of years, as has been the case with the race.

The pedagogical implication of this theory is that children should be taught the arts of each of these stages while they are in them. Let them hunt and make bows and arrows, slings, cross bows, etc., while in the hunting stage. Allow them to live in caves, make stone implements, work with skins, and experiment with fire,

etc., in the cave-dwelling stage. Fit each of these stages with the appropriate training.

As a theory, this will not hold with any exactness. We cannot see these stages in children very clearly, and they often skip them completely. But as a source of suggestion for simplifying school work and letting the children do primitive things, it has been illuminating and useful. For undoubtedly we have kept children in school too close to books and seat work and have not given them the opportunity to work with things that they should have had. When we discuss the manual arts, I shall take pleasure in giving many illustrations of how the appeal to primitive implements, as mentioned above, — stone hammers, skins, spears, bows and arrows, shell spades, etc., — are of great use in the grades.

There is so much confusion about what is the correct view to take of the stages of childhood and the characteristics of each stage, that the teacher hardly knows what to do. All teachers, whether inexperienced or experienced, feel the same uncertainty. In the light of this, the only thing the rural teacher ought to do is to follow the courses of study and outlines prepared for him, and deviate whenever in his experience with his group of children it seems wise to do so. The courses of study have been prepared with these stages in mind; they cannot be infallible, but in all probability the average teacher cannot better them except in details; he can, however, modify a course to suit his classes and can undoubtedly improve upon it here and there.

Summary. The course of study in word recognition in the use of the vocal organs is not logically organized. The organization is psychological. The subject-matter that is read is, for

the most part, arranged in the course of study according to what the organizer considered to be the stages of development of the children concerned. But there is no consensus of opinion upon the characteristics of the stages, and the inexperienced rural teacher has to depend upon the course of study that is given him and upon his own ripening judgment in applying it to his classes from year to year and from grade to grade.

2. Primary Reading

We shall give a separate section to primary reading because it differs in detail from advanced reading. The similarity between the two is evident. The differences in detail are due to the fact that in primary reading the pupils have to master a new tool — the letters and the word. Once these are conquered, the problem changes to one of drill and application. But the method of mastery of the word forms is different in detail from the later drill; and so a separate section is devoted to it.

Function of Primary Reading. The peculiarity of primary reading by which it differs from reading in general is that in it word forms must be learned for the first time. When the child has finished the primary grades, whatever else he may have learned, he must have mastered the art of knowing words at sight and connecting them with what they stand for. The child should be able to take a page of print, which to the unlearned means nothing, and on the page presented give each set of letters the name that people at large give it. Then, if he can do this, he is able to work at the meaning that lies behind the words. Primary reading methods deal with this process of recognizing or giving names to words.

The Alphabetic Method. There are a number of interesting facts to be considered in connection with primary reading methods. First among these is the system of teaching reading known as the alphabetic method.

It is interesting because it shows how the adult mind with all its logical powers fails to understand certain simple facts about children. For the alphabetic method assumes that children recognize words just as adults do. An adult when he meets a new word, as *peripatetic*, for the first time spells it out: *p-e-r-i-p-a-t-e-t-i-c*, or syllabicates it as: *per-i-pa-tet-ic*, and by rapidly pronouncing it gets the word in correct form at last. That is, he first uses the letters, then the syllables, and finally the word.

So for many centuries the schools taught little children the letters first and then set them to studying syllables and words. But in doing so they overlooked the interesting fact that one can learn to tell *dog* from *hat* just as easily, or more easily than he can distinguish *d* from *h*. It was not known that words may be learned as wholes without any knowledge of letters; that a child can recognize *dog* or *whistle* without knowing any one of the letters of which it is composed. If they had stopped to think, they would have realized that it is possible to recognize a person without being able to tell the color of his eyes, the shape of his nose, or the way he wears his hair. And so it is possible to recognize *whistle* without knowing any of its " features."

The word *horse* is distinguished from *house* by little children, not because *r* takes the place of *u*, since they know no letters, but because *horse* does not look the same as *house;* there is a difference in the center of the word. Here, again, the parallel with faces helps. It frequently happens that where two persons look as much alike as *horse* and *house*, we can tell them apart without exactly knowing why.

The Word Method. When it was discovered that children may get word pictures before learning the ele-

mental letters that compose them, a great advance was made because of the possibility of producing more interest. If interest can be secured, learning is more rapid. This the word method was able to accomplish because, while children have little interest in *a*, *b*, *c*, etc. as letters, thinking them little nuisances in many cases, they have great interest in such things as candy, knives, ropes, balls, dogs, etc., and learn the word forms that stand for them much more rapidly than the children before them learned letters. Now it is possible for children in a year to learn to recognize as many as twelve hundred words in ordinary reading. If they have mastered twelve hundred common words, they can read almost every word in a newspaper.

The analogy of this work with that of recognizing people may be used again. A page of words is like a crowd of people. In reading a page of words, the task is just the same as identifying each person in the crowd; and ability to read is judged by the accuracy and speed with which the identification takes place. And just as one may recognize every person in the crowd, and be able to tell the color of the eyes of none, so, theoretically, one is able to recognize every word in the English language without knowing a letter.

Phonic Method. In order to do this, however, some one who knew each word would have to be beside the reader to tell him the name of each. This is a waste of time, if a method can be devised by which children may build up words for themselves. This is accomplished by the use of phonics. It is found that, after a number of words have been learned as pictures, the children begin to notice the differences, and this leads gradually and naturally to letters. That is, if the children studied

words long enough, they would discover the letters for themselves; though, of course, some one would have to tell them the names of the letters.

But when they learn the names of the letters, they are not greatly benefited in getting hold of new words for themselves; for the names of the letters when put together seldom give the word. For instance, *c-a-t* when pronounced letter by letter does not give *cat*. It spells *see-a-tee*, a quite different word.

So the *letter-sound* has been utilized instead of the *letter-name*, and instead of spelling *cat* as *see-a-tee*, it is sounded *kuh-at-tuh*. In this way, the child, if he knows the letter-sounds, can build up words.

One serious trouble, however, that he faces, arises from the fact that many letters have more than one sound. This is true of all the vowels, and of such letters as *c* and *g*. So the child in mastering these sounds encounters a great deal of difficulty.

Some people have worked out primary reading by beginning as in the alphabetic method, but using phones or letter-sounds instead of letter-names. They are said to use, then, a phonic instead of an alphabetic method. But where they begin with the sounds they have just the same trouble that is encountered in handling the alphabetic method. The children are no more interested in letter-sounds than in letter-names.

Hence, because of the difficulty of using letter-sounds and because of their own immediate lack of interest, phonics should not be taught until the children have learned from one hundred to two hundred words and are where they need to learn new words for themselves. When children have learned a number of words of the same sort, they can compare and discover

the similar sounds, as *t* in *time, tree, table, tack;* and when that point is reached, phonics becomes very easy.

When phonics is taught, it should be taught very probably in a period separate from the reading period; but applications should constantly be made in the reading period. Only the more important sounds and combinations should be studied, but these should be thoroughly mastered.

The Sentence Method. It has been found that the appeal to interest can be strengthened by using the words in sentences. For instance, the word *dog* has still more interesting connections in a sentence than when used alone, interesting as it is alone. In the sentence "Play with the dog," many new feelings of interest are tapped, and this is true wherever words are thrown together in sentences as interesting as the ingenuity of the teacher can discover.

SUMMARY. The problem in primary reading is to teach the children to recognize words on the printed page. This can best be done where the words are connected with interesting experiences of the children, and their use in sentences helps to do this. The letter-names and sounds enter incidentally into the study after the children have a considerable vocabulary, and are of use to them in deciphering new words.

At some time in the early grades the children should be taught to say the alphabet both backward and forward with great rapidity for use in consulting dictionaries and indexes of various sorts.

Things of Interest to Children. It is not our purpose to enter into a long description of methods of teaching primary reading, because a good literature has been worked out and short references are given at the end of the chapter. We are trying merely to describe the essentials, the points that are of the greatest impor-

tance in showing the tendencies of the methods now in use.

As we have mentioned from time to time, children learn words most easily and most vividly when they are connected with things of interest. What some of these interesting things are may be summarized for use.

Most of the early school readers chose common objects with monosyllabic names. They chose these because the names were easy to spell; for example, *hat*, *fan*, *ox*, *man*. More recently, however, we find use being made of nursery rhymes, which the children probably know by heart and love. Being known and loved, they are enjoyed when read in books. Industrial occupations and simple primitive activities also are used to give an interest to the words. The plays and games of children are not infrequently used as a basis for the reading lesson. Actions are expressed in sentences, as, " Find the ball," " Hide the picture," and so on. One reading book has the circus, its animals and activities, as the basis. Others use directions for making things and for doing things. In some cases dramatics are used to give an interest to the study of the words.

In many cases the subject-matter is quite inane and silly, as viewed by a normal six-year-old. This, however, is coming to be less and less the case as we get further and further away from the idea that little simple words, easy to spell, are the easiest to learn. As we free ourselves from this fallacy, the primers reach out into new fields of interest, so that by the use of a few such books the children gain a wide and wonderful range of interest.

There is a growing tendency in the best schools to introduce a great deal of manual work, such as will later be described in Chapter VIII on " Manual Arts,"

including much clay modeling, basketry, and picture drawing. As this is done, the reading may very well be worked in around it and made incidental to the grinding of meal, the making of boats or bows and arrows, and the building of snowshoes or sledges.

Blackboard. The effort to bring as much interest as possible into the reading naturally leads to the free use of the blackboard. For the reading book, at best, is not so flexible in its use as is the board. On the board the teacher may write up-to-date words of immediate interest, and may rub out and rewrite all in a little time. Whole conversations of great moment may be carried on by the teacher with the pupils — not stiff and stilted conversation, but free and flowing conversation in which is blended children's wit and humor and joyous activity.

The use of the blackboard requires, of course, the use of script, because printing is too slow for the teacher. Some teachers require the pupils to do a great deal of printing, but many of the best teachers rely entirely on script and never require the pupils to print.

Many teachers do not use the book for the first six weeks, but do all the teaching on the blackboard and at the seats. In such cases, it takes only a few days to lead the pupils from writing script to reading print, and during that time the pupils may be required to print, although not all good teachers do even that.

Charts. Many schools use charts with words on them for primary reading. If you have charts, you may make some use of them. It is unwise, however, to purchase them. Much better use may be made of the time with work on the blackboard. The purpose of the charts is to give drill to all the class; but more interest and, therefore, better results can be secured by other means.

Drill. In order that children may recognize words rapidly and accurately, drill is necessary. There are three ways of getting drill. One is to use a reading book in which the same words appear over and over again. Many primers, in fact nearly all, bear in mind this repeated use of the same words and weave them into succeeding stories. Psychology teaches us that this is a good way to memorize, for it provides repetition with intervals between the repetitions. In selecting such books, however, one should avoid those in which the author thought so much about bringing in all the review words that he forgot to make the lessons interesting.

Another method of drill is the use of artificial exercises. The word may be written over and over upon the board by the teacher, the pupils may write the word over and over, and they may have the words on strips of paper to pick out as seat work. All these are useful.

Supplementary Reading. A third method of getting drill is to use much supplementary reading. A pupil who has read six books in the first grade will have a better hold upon the words in any one of the books than if he had spent all his time on that one book; and, of course, he will know more words. The reason for this is that in using the same book over and over, the interest is lost; while in supplementary reading the interest is strong whenever the review word, or any other word, is seen, because of the interest in the new supplementary story.

In the rural school, where money is not available for the purchase of many supplementary readers, the teacher may, instead of buying six supplementary readers of the same kind, buy six different readers,

and in that way give each pupil a chance to read six books. These books should be easily accessible to the pupils, so that they may read them at any time when they have finished the necessary work.

It is almost impossible to make a good reader of anybody who does not read widely. One-book readers are poor readers, and the teacher should use every means available to get simple supplementary material. For the greatest single thing the school can do for its pupils is to teach them to read fluently and thereby gain access to the world of knowledge and inspiration that is tied up in books.

Standards in Primary Reading. The task of the primary pupil is to pick out individual words from a page of words. He has to recognize them one by one. Since the number of words he knows is so very small compared with the number that are strangers to him, he needs to know very well indeed those that he knows at all. This means that plenty of drill should be given on each word, so that it can be recognized accurately. It pays to go slowly at first and to leave no new word until it is mastered. Likewise, old words should be reviewed in order that they may not be forgotten.

In primary reading there are two dangers in the matters just referred to. One teacher may go ahead so fast that the new words are not half learned. Another teacher may go so slowly that interest is killed. A good teacher will maintain interest while securing thoroughness. This will be done by the ingenious and skillful use of the blackboard.

Besides recognizing words with accuracy, the pupil should be able to read them aloud rapidly. This is frequently not the case. Children are allowed to halt

between words in reading. But if the teachers in the primary grades made the pupils read as they talked, naturally and fluently, and if each teacher following did the same, there would be no errors of this nature to correct in the high school. The easiest way to cure the error is to keep it from occurring.

SUMMARY. The standard for good reading in the primary grades is fluency. Words should be recognized as accurately and quickly as is within the capacity of the little people.

3. Motive for Study

We have again our three possible cases. A pupil may have immediate interest in reading, he may be made to have an interest through the appeal to some generic value, such as good grades, or he may have an interest aroused by an appeal to a specific need.

The first two need no further elaboration. If immediate interest is present, that is the end of the matter. If appeal is made to generic values, the method is the same as that stated in the chapter on spelling. The third, however, deserves further elaboration.

Silent Reading. The method of arousing a specific need for a subject is, as we recollect, to discover the intrinsic function and select situations in which the reader suffers because he cannot read. The intrinsic function of silent reading is to get ideas from the printed page. If, then, the ideas on the printed page are of great value to the reader, he will see the importance of reading and feel the handicap of not being able to read.

The whole essence, then, of motive in reading, the whole secret of getting boys and girls to be interested in reading, is to give them material that they like to read.

As they find a story more and more absorbing, they read faster, and they look with greater interest for the meanings of those words that are the key to the situation and whose absence leaves the story incomplete. This is a very simple rule and one very easy of application. In the last analysis, all that is needed to make rapid and fluent readers after the mechanics have been learned is a library of interesting and not too difficult literature into which to turn the child. If it is vital material, the child will read it. This does not mean a library of material of interest to an adult. It means literature of interest to the reader. It may include blood and thunder stories of good literary quality, fairy stories, biographies, and tales of adventure; but whatever it is, if it grips the boy, he will read on in it and gain in fluency, in the reading.

Oral Reading. In oral reading all that has been said about silent reading is of use. To be a good oral reader, the pupil must think that the selection he reads is "pretty fine stuff."

But oral reading, to be inspiring, must go further than that. To have a motive for the study of oral reading, the reader must feel that he is giving his hearers something that they, too, think is "pretty fine stuff," and with which they are not very familiar. This is parallel with the motive for language.

If a boy gets up to read a selection from a book, and, seeing the book open before each pupil, knows that the others are familiar with what he is reading, he has no motive for reading aloud. He certainly would not do it anywhere else but in school, where he does it under compulsion; and, of course, his reading is perfunctory. Why should he read with interest, since everybody knows all about it already?

Something is gained, nevertheless, from a reading of selections by pupils when all the other pupils have their books open. What is gained is fluency and accuracy in words. Something also is lost; and that is interested enthusiasm in oral reading.

So long as a pupil's audience already knows what he is reading, he will not care particularly whether he reads too fast or too slowly, too loudly or too low, nor will he care if he mumbles or " calls " his words.

The audience suffers from this, too. They listen with an effort to stuff they already know. They grow inattentive, and the teacher has to invent devices to keep their eyes on the book. For instance, he has them watch for mistakes (which, of course, is no great aid to the enthusiasm or composure of the reader), or he makes the reader stop suddenly in the midst of a sentence and compels some one else to start " where he left off," thereby catching the boy whose mind is wandering.

Now, all this inattention can be cured if the teacher can arrange matters so that frequently the reader can read something interesting to the audience which the audience has not heard before.

This can be done on special occasions, as Friday afternoons, or for a few minutes twice a week. On these occasions the pupils may bring in jokes and anecdotes that they think are good and which they think the class would enjoy. Again, the teacher, using supplementary material, may in a small class give different pupils different books to read orally; or in a large class he may give one half the class one kind of book and the other half another. Then, when one half of the class is reading, the other half is the audience, and *vice versa*. Thus, in

history and geography, the teacher may allow the pupils to refer to the exact expressions in the book and read them in case an argument is raised. Here, the reader reads with conviction to convince an ignorant audience. In such cases as this, pupils will care whether they are understood or not. They will be interested in trying to read with the right speed to make themselves intelligible. They will take an interest in whatever articulatory exercises and drills in pronunciation are necessary to make them able to interest an audience.

SUMMARY. In silent reading the most important factor is interesting reading material, and in oral reading an added and equally important factor is an interested audience to which to read. These are the alpha and the omega of the reading process.

Correlation. Reading is one subject that can hardly be studied except in correlation with literature or some other subject in the course of study. It is a vehicle by which all knowledge may be transmitted, and in grade school or high school it can be studied very little apart from the content it carries. We have just been pointing out the fact that if this content is of interest, then the reading will be well taken care of. It should also be pointed out that high ability in reading when applied to any other subject is an aid toward excellence in that subject; for often a pupil's poor hold upon history, geography, or even arithmetic, is due to the fact that he cannot read accurately and rapidly.

4. The Study of Upper-Grade Reading

The Natural Method. The method now used by nearly every teacher in teaching the mechanics of reading is based upon the natural manner of talking. The theory

is stated as follows: If a pupil understands what he reads, he will read it naturally; and if he reads it naturally, he will read it correctly. Negatively, this means that if pupils make mistakes in reading, it is because they do not understand and appreciate what they read. So, to correct errors, it is necessary to see that the pupils understand the content of their reading.

This principle is a great advance over the old mechanical methods, as you will see in a few moments; and used with its limitation in mind, it is worthy of general acceptance. The only limitation is this, that if the reader has defects in his speech, such as stuttering, mumbling, mispronunciation, or poor articulation, it is not enough to have him read naturally in order to read correctly, because when he speaks naturally he speaks incorrectly. To remedy his natural speech he needs sometimes to have exercises given him.

So with this limitation it makes a fine basic principle. The teacher should see that the pupil understands what he reads, and should then correct any errors that arise in his manner of speech.

If in vocal reading the pupil reads to an interested audience something he appreciates and understands, he can cure many errors, a few of which I shall discuss briefly.

Proper Attention to Punctuation Marks. Frequently a pupil allows the voice to rise at a period or to drop at a question mark, and pays no attention to commas. The mechanical method of handling this is for the teacher to say, " John, you did not let your voice fall at that period. Read it again and see that it falls." The trouble with this method is that it is ineffective, since John, if he is like other children and most adults, does not know

how to make his voice fall or rise, and does not know when he tries whether it goes up or down.

The trouble with John's reading is that he does not understand the sentence. If he did, his voice would drop naturally without any attention from him. Instead of telling John to obey these artificial rules, therefore, the teacher should help him to understand what he is reading.

Loud Reading. Frequently as soon as a pupil begins to read, he begins to shout. Instead of merely saying, "Do not read so loud," the teacher should go to the bottom of the trouble. He reads loudly because he has forgotten his audience. Say to him, "Do not try to make the blacksmith in the village hear you. Read to me here beside you." Then, as he realizes that his audience is near, his voice will fall.

Low-voiced Reading. Exactly similar is the trouble with those pupils who read in a voice too low to be heard; they have forgotten their audience. An effective rule for all speakers to follow is to address the back row of the audience. When the speaker does this, his voice naturally tries to accommodate itself to that distance. Therefore, if a pupil reads in tones too low to be pleasing, the teacher may place himself in a distant corner of the room and have the pupil read to him.

Calling Words. The practice of stopping before each word is due in part to a practice permitted in early primary reading where the teacher did not require fluent reading, in part to the inability of the reader to recognize the words rapidly, and in part to his not understanding what he is reading. So far as I know, the best plan to follow is to give such a reader, or a whole class, if they all call words, some books to read

that are easy to understand and that contain simple words. These selections should be read over and over again at a high rate of speed until the pupils have learned how to read *something* without calling words.

Mumbling. This defect can be helped very materially if the reader realizes that he has an audience. If he selects something for the pupils to hear read, something that he likes, something that they like and that they do not know, and if he finds (by the teacher's showing it) that they do not understand, he will begin to think about his articulation. People mumble when, from embarrassment or other causes, they are not trying to get other people to understand them. They just talk. But if the desire to convince is born, the effort to cure the mumbling increases, and the results are close to realization.

Better Expression. One common criticism made by teachers after a pupil has read and when it is his business to say something is, "Yes, but see if you can't put more expression into it"; or, "Try again, and see if you can't do better." Two more silly criticisms cannot be found; for the boy cannot put more expression into it than he feels inside, and commanding will not make him feel more. When he is told to read better, he has no idea what to do. Both criticisms are too vague. Better by far for the teacher, if he wants better expression, to go over the selection again with the reader so that he will feel its spirit more, and then, and only then, will he put more expression into his reading of it.

Drills. Drills in reading may be given whenever, after a pupil understands the selection, he is still unable to express it properly. Sometimes the trouble is with pronunciation. When a word is mispronounced, it

should be studied as carefully as is necessary to secure a correct pronunciation. Such a word as *cavalry* mispronounced as *calvary* has to be syllabicated to be clearly understood, and then by constant attention must be corrected whenever mispronunciation occurs. It may be well to write out such a word as this and to perform upon it those habit-producing devices outlined in the first chapter on spelling.

Articulation frequently needs to be practiced. This one fault causes more inaudible speaking than any other single factor. In curing faulty articulation, exercises are valuable. Lists of exercises may be found in many places, some of which are given at the end of this chapter. The pupils themselves will frequently make up drill lists. The practice should not be indiscriminate upon all consonants, but should deal with those that give most trouble.

Needless to say, the teacher must himself articulate clearly. Most teachers do not; but any teacher, without physical defects, may, if he take the trouble. This does not mean that he must recite a long series of similar sounds, but it does mean that he must use care in forming every word he utters. A good exercise is to take any selection one happens to like and syllabicate slowly, taking care to hit every consonant hard, slurring none and over-emphasizing a bit, if necessary. A speaker with a voice so distinct that his whisper can be heard one hundred feet secured his skill through the practice of distinct enunciation. To overdo the syllabication is affected; to slur is slovenly; to speak it neither with affectation nor a slur is perfect.

Summary. Drill should be carried on for the correction of mispronunciation, poor enunciation, and other physical and

mental errors, as the need for it arises. In this connection the rules for habit formation as developed in earlier chapters should be followed.

5. *The Study of Literature*

In the grades, reading and literature are seldom separated, because literature is usually the material for reading. Not all the history and geography studied from day to day is read in class, but nearly all the literature is.

In the reading process, literature is connected with both silent and oral reading, because, when it is read, the pupil has to understand it and feel its spirit. This, it seems to me, is the chief problem of the study of literature in the grades — how to understand and feel the spirit of a selection in literature.

Problem. One very striking fact about literature is that every unit, be it a stanza or a book, is solving some problem — answering some question that experience has put to the author. For instance, in Longfellow's "Psalm of Life," the author is answering the question, "Is life an empty dream?" Thus every poem answers, or tries to answer, its own question. This is one function, perhaps *the* function of literature; to solve certain problems and answer certain questions.

Now the literary selection contains the answer, and either the reader may read it over, not bothering to get a definite idea of the answer, or he may try to get a clear conception of both the question or problem and its solution or answer. For instance, in the "Psalm of Life," the reader may read the poem, enjoy it, and when through say, "Yes, I guess he's right. Life is more than an empty dream," without being able to give the reasons for thinking so. Or another more inquisitive reader

may in reading search for the answer.' In so doing he really outlines the poem, and he finds that Longfellow thinks that we live to help others and that we must hurry to help them. He finds that the poem is divided into about four divisions; namely, stanzas 1 to 3, stanzas 4 to 6, stanzas 7 to 8, and stanza 9. Each of these makes his answer clearer. The first group states his answer boldly, the second group shows the necessity for haste, the third group shows how we can help others, and the fourth group urges us to action. If the reader cared to, he could continue this analysis and make a very careful study of each word in the poem and get at the author's exact thoughts.

Now, while the ideas are being discovered, we feel the beauty and the emotion expressed. We do not study feeling consciously very much in the grades; feeling comes like the odor of the bread we buy. We do not go out to buy an odor; we want to eat the bread in order to live, but the odor is thrown in as an important part. And so in literature we get the idea, and the feeling clings to it like an aroma.

Study of Selections. In the study of literature with children we may analyze the selection very carefully, or we may read it merely for its general impression upon us. Some forms need to be handled in one way, and some in another. A rather common fault in teaching is the tendency to over-analyze selections that are not worth such careful analysis. On the other hand, it is sometimes advisable to get a very clear idea of the content of a poem by careful study.

Let us take, for instance, such a poem as this: —

The breaking waves dashed high
On a stern and rock-bound coast;

And the woods against a stormy sky
Their giant branches tossed.
And the heavy night hung dark
The hills and waters o'er,
When a band of exiles moored their bark
On the wild New England shore.

It pays here to take time enough to enable the pupils to see the mental picture. The first two lines may require a good deal of explanation before such a picture can be built up. Perhaps some actual pictures will be necessary. Verbal descriptions may be in order, and explanations of the words that are used. Thus, each line may have to be taken up word by word, so that when the stanza is finished the pupils may see the picture as the author saw it. It requires judgment to decide which to take up intensively and which to read rapidly and hurriedly.

SUMMARY. Selections may be studied rapidly for the general impression, or intensively to find out exactly what is the author's answer to the questions he has proposed, the teacher deciding which is worthy of such care. When intensive study is advisable, it should be carefully carried on until each phrase in the selection is clear and all the pictures are definite in the pupils' minds.

Assignment. The country school, unfortunately, does not afford much time for the analysis of literature in class, and, consequently, the pupils have to do most of the work in the assignment by themselves.

There are two sorts of assignments to be made. One is to read the lesson over and, where dictionaries are in use, to look up the words that are not understood. Such would be the assignment where only a cursory reading of the selection is to be made. In the other case, in addition to reading over the passage and looking up

the meanings of the words not understood, the analysis may be helped by a few questions from the teacher.

In the "Psalm of Life," the pupils will be helped greatly by having such questions as the following set for them: —

1. What is Longfellow's answer to the question, "Is life but an empty dream?"
2. How does he prove his answer?
3. What metaphors and similes does he use? What does each mean?

Supposing that the children are really interested in this question, which none, even in the eighth grade probably are, the three assignment questions will help, for it gives them something more to do than just to read the selection over. This device of assignment questions is very stimulating and convenient. An ingenious teacher can set such questions in both literature and history, and will thereby get most enthusiastic work.

Beauty. Literature is different from mere writing in that it obeys the laws of beauty. Literature is information, or an idea, plus beauty. I may say, "As I stand on the seashore and see the waves breaking on the shore, I wish that I could express the thoughts that come to me." That is the statement of a mere fact. When Tennyson says, —

> Break, break, break,
> On thy cold gray stones, O Sea,
> And I would that my tongue could utter
> The thoughts that arise in me, —

he gives us literature. He adds beauty and gives feeling to the bald fact.

A feeling of beauty is not something that can be commanded. It grows and develops. But the teacher can cultivate an appreciation for the beautiful by two ques-

tions and their variations. (1) What do you like best in this selection? and (2) Why? The way to develop appreciation is to call attention to it and to give reasons for liking a thing. This makes the pupils young critics, but, for all that, appreciative ones. The great critic asks and answers only those two questions, but he answers them profoundly. The child answers them simply in his own words. He knows what he likes and may try to find out why.

The teacher may reinforce pupils' likes and dislikes, or may modify them by his own opinions in which the pupil has confidence. But teachers should not spend much time talking about beauty (or feeling). It grows best when it is not discussed too much, and when standards not too high are set for it.

Memorizing Poems. It is wise to have pupils memorize carefully selected poems. The selection should be made with care, because only those poems that are of interest now and that will be of interest in the years to come should be memorized.

A but little appreciated fact about memorizing poems has recently been emphasized, Suppose the selection to be memorized is the " Psalm of Life." This consists of thirty-six lines. The usual method of memorizing is to learn the first line first and then go on down, thus:—

Tell me not in mournful numbers,
Tell me not in mournful numbers,
Tell me not in mournful numbers,
Life is but an empty dream,
Life is but an empty dream,
Tell me not in mournful numbers,
Life is but an empty dream,
For the soul is dead that slumbers,
For the soul is dead that slumbers,
For the soul is dead that slumbers,

And things are not what they seem.
And things are not what they seem.
And things are not what they seem.
For the soul is dead that slumbers,
And things are not what they seem
Tell me not in mournful numbers
Life is but an empty dream,
For the soul is dead that slumbers,
And things are not what they seem.

In this, one important fact has to be borne in mind. Since memory is aided by the association of words, the best association would be at the end of each line to connect the last word with the first word of the next line; thus *numbers* should be connected with *Life; dream,* with *For; slumbers,* with *And;* and so on. But that is not the connection set up in this illustration.

By looking at the foregoing repetitions you will find that the connections of *numbers* are *numbers-Tell, numbers-Tell, numbers-Life;* and the connections of slumbers are, *slumbers-For, slumbers-For, slumbers-And, slumbers-And.* But psychologists make the point that the connections *numbers-Tell* and *slumbers-For,* hurt the memorization by setting up wrong associations. So they have suggested memorizing in a way that saves the correct connections and actually enables one to memorize more rapidly in the end. This is called the *Whole method,* and consists simply in reading the thirty-six lines of the " Psalm of Life " over, then reading them over again and again and again, until the whole is memorized. One would think offhand that this would take longer, but it actually takes less time than the other. If some lines give particular trouble, they may be drilled on in addition. But the process of reading, from start to finish, should be continued till all is learned.

Little children may feel that they are not getting

anywhere and may prefer the customary *Part Method*, but the teacher ought to know how to use the Whole Method himself and should get the children to use it as rapidly as they can be successfully weaned from the other. They will soon get used to the temporary discouragement due to the frequent readings that are necessary before any part sticks completely.

SUMMARY. Care should be taken that nothing be memorized that does not seem to have promise of permanent life value to the pupils. The Whole Method should be utilized as rapidly as the experience and ability of the pupils will permit.

Course of Study. The teacher in the rural school is dependent for the most part upon reading books and supplementary material for his course of study. The reading books and the supplementary lists are made up with a view to providing material that will appeal to the children at the various stages of their development. These stages, as we have seen, are not clearly marked off; and so there must of necessity be much guesswork, and no one who outlines a course of study in literature can justify his order of selections against all others. But many have given thought to it, and their opinions are worth consideration. For that reason there are appended at the end of this chapter a number of courses of study in literature.

The teacher should use whatever course seems best to him, when he has taken into account the peculiar conditions of his own classes. This selection can be made with greater care as he grows in experience and carefulness.

6. Class Mechanics

Position. In general, a pupil while he reads should stand squarely on his feet with chin up. He should hold his book on his left hand so that his right hand is free to assist in various ways. These little facts are of importance because they give a position conducive to full breathing and to a good general physical tone. A slouching position produces correspondingly poor reading. This does not mean that pupils should not read aloud without standing. Frequently, perhaps, for economy of time and effort, they should stay seated. But whether the pupil is sitting or standing, slouchiness produces lazy reading.

It is thought wise to have all the class sit with *closed books* when one of their number is reading. If one of the listeners lets his mind wander from what he has already read a dozen times, he should not be disciplined too severely. Put yourself in his place and punish according as his misdemeanor would surpass your own in a similar situation.

Criticism. It is very embarrassing to readers to be followed by an audience that is looking for mistakes. It is so disconcerting that readers through nervousness often make more errors than they would otherwise.

Yet one sort of criticism by the class is good. This criticism can best be given when the selection read is new to all but the reader. It takes one of the following forms: "Did you understand the last sentence, class?" or, "Discuss the picture as John (the reader) made you see it, Mary"; or, the teacher may say to the reader, "Make the class see the picture as you read it to them," and so on. This constructive criticism that

does not stop with negatives is helpful to the reader. It must, of course, be friendly, or impersonal at least, and never harsh. When given in such a spirit by the class it is probably more effective than when given by the teacher.

The little trick of reading the name of the selection and the page is out of date. There is only one justification for reading these, and that is to help some careless child who has lost his place, to find it again. But since every child is supposed to know what is being read, he will have his book open, if all use the same text, or will have no text, if it is a new selection. So, in any case, this formality is unnecessary.

Alternation. Alternation can be very well undertaken after the first two years. First grade and second grade classes cannot alternate. But third and fourth, fifth and sixth, and seventh and eighth may alternate in pairs, because the difference in ability between the two will not be great enough to make the class uneven.

REFERENCES FOR CLASS READING

ARNOLD. *Reading, How to Teach It,* pp. 87–103, 199–221. (Study of the lesson.)

BLACK. *Primary Methods,* pp. 25–123. (Course of study.)

BRIGGS AND COFFMAN. *Reading in Public Schools,* pp. 45–91. (Primary reading.)

CLARK. *How to Teach Reading,* 117–27. (Mental attitude of the reader.)

COX. *Literature in the Common Schools,* pp. 128–75. (Course of study.)

HALIBURTON AND SMITH. *Teaching Poetry in the Grades.* (Illustrative lessons.)

HUEY. *The Psychology and Pedagogy of Reading,* pp. 406–18. (Standards of print.)

MCMURRY. *Special Method in Reading,* pp. 245–81. (Class methods.) Pp. 282–301. (Illustrative lessons.)

ROCHELEAU. *Intermediate and Grammar Methods*, pp. 232–40. (Course of study.)
SHERMAN AND REED. *Essentials of Teaching Reading*, pp. 150–65. (Exercises for vocal organs.)

CLASS QUESTIONS

1. As symbols, are the German letters easier to read than the letter forms we use? Which of our letters are too much alike for legibility?

2. Give instances from your own experience in which an appreciative audience of one or more made you do your best reading, and where an unappreciative audience dampened your enthusiasm and affected your reading.

3. An actor is a reader; what are the standards by which one would judge the success of an actor?

4. Give instances showing the practicability of using the impression made by a reader upon the class as a test of good reading. How did the teacher find out what this impression was?

5. Give examples of ten selections in readers that describe experiences and situations too old for the children who read about them to understand.

6. What would you do with selections that are beyond the children?

7. Are all poems written about children, poems that children will appreciate?

8. What is the difference between literature about children and literature for children?

9. Name ten poems about children that commonly appear in the grade textbooks that are not suitable for children. Explain why in each case.

10. Take a reader for fourth-grade children. Glance through it and classify the selections into the following three groups: (1) those assuredly suitable for fourth-grade children, (2) those assuredly unsuited to fourth-grade children, and (3) those about which you are in doubt. What are the figures? What will you do with group 1? With group 3?

11. Should the rural teacher try to teach gestures? Why?

12. In what grades do fairy stories seem to belong? Mother Goose rhymes? Stories of adventure?

13. What is the usual age for dime-novel reading? What are the good elements in dime novels that make them attractive to boys? What are the bad elements? What books have the

good elements of the dime novel without its bad elements? Do boys like them?

14. If your school board will not give you money for supplementary reading, what are you going to do about it?

15. The *alphabetic method* taught people to read. Why is the *word method* better? Under what conditions is it no better than the alphabetic method?

16. Do you think a primer made up of children's jokes would be interesting to them? Give three examples of what six-year-old children thought were jokes.

17. Do you believe that a large amount of reading out of many books is necessary to good reading? Why?

18. Give three examples in which a person speaking naturally, does not speak effectively.

19. Give five examples of pupils reading incorrectly because they did not understand what they were reading.

CHAPTER VI

DRAWING

1. Subject-Matter

Language and Drawing. The parallel between drawing and language is very close. In drawing, as in speaking, the object is to communicate some value to other people who, it is expected, will be in some degree interested. The traveler draws a diagram to show his comrade through what towns their route will pass. The reader says, " This is my idea of the costume the author describes," and draws a sketch. The artist sitting by the riverside puts the scene on paper, as he sees it and feels it, for others to see and feel. Speaker or artist, each has a choice of his means of communication. In either case, he communicates something that he thinks worth while.

The essential difference between language and drawing is merely one of the medium through which communication is carried on. The speaker uses words; the artist uses colors, tones, and lines. The words are combined into essays, novels, poems, plays. The colors, tones, lines are combined into landscapes, portraits, pieces of genre. And there is further parallel between these two modes of expression. For instance, both writer and artist follow rules of composition. The artist makes an outline; so does the writer. The writer introduces detail according to rules and standards; so does the artist. Where language is literature, and drawing is art, the translation of each into experience is likewise

parallel. The reader of literature attempts to re-live the writer's experience. The observer of a work of art tries in like manner to decipher the symbols the artist has used to express his idea, so that he may re-live his experience with him. And just as we saw in the last chapter that each poem solves a problem and satisfies a need, so in like manner a picture expresses some central idea which constitutes its meaning. The difference is merely one of medium. The process of reading a poem is generically the same as that of reading a picture.

Because of this close relationship between language and literature on the one hand and drawing and pictorial art on the other, the principles that have been applied in the last few chapters will, in the main, apply to the teaching of drawing. The differences are largely differences due to the fact that we must substitute color, tone, and form for words.

SUMMARY. Drawing parallels both language and literature, not only because drawing is a vehicle of expression for the artist just as language is a vehicle of expression for the writer, but also because the observer of a picture deciphers its symbols to get at the meaning in it just as the reader deciphers the symbols of language in order to re-live the experience of the author.

Function of Drawing. The function of drawing is to communicate values through forms and colors to an interested audience. As a language it is a vehicle of expression. As "literature," it is a means of gaining experience. For the one who draws, drawing is a means of expressing an idea; but for the one who views the drawing, it is a means of gaining an idea from the artist.

Drawing is a better vehicle of expression than language in two ways. In the first place, it is more graphic; that

is, it shows the meaning more quickly and clearly. The newspaper cartoon is an example. In February, 1913, the world was shocked and invigorated by the splendid heroism of Captain Scott and his companions at the South Pole. Many columns of newspaper copy were written about their actions, and the diary of the dead leader was published and widely read. But a single cartoon by McCutcheon in the Chicago "Tribune" expressed more at a glance of the eye than all the pages of written matter. All that was shown was a low, level, ice-covered plain, a dark sky, an ice-covered shaft from whose summit floated a Danish flag and at whose base streamed an English ensign, and recumbent in utter weariness the bodies of four men whose frames made the nuclei of little hummocks of snow which covered them. A reader can get nearer to the heart of the news in less time by following the cartoons of a good newspaper than by reading the editorial columns. What holds true for cartoons, holds true for all art—it expresses volumes that can be gleaned at one glance of the eye.

Drawing is a better vehicle because it is more universal. "One hundred people see pictures for every one who reads a book." G. Stanley Hall says: —

The American child needs more, not less, pictures. How, e.g., Homer, not to say Virgil, the Greek dramatists, Shakespeare, and the great masterpieces, would be vivified by an abundance of even cheap reproductions of the best pictures with which artists have illustrated classic story! History, too, has been visualized, not only by portraits, but by scenes of battle, congresses, and other pictorial events which have idealized and could give great enhancement of zest to its dogged pages. Science, too, cannot have too many illustrations. Our geographies, especially illustrated as they are now, need a great profusion of additional views of mountains, valleys, shores, seas, landscapes, towns, streets, and everything

else which can be made so vivid as almost to take the place of travel. The stereoscope is now so developed that groups of scenes and hundreds of binocular pictures of, e.g., Palestine, Egypt, India, the Rocky Mountains, etc., give the spectator an almost complete sense of being present and of actually gazing upon landscapes, cities, or ruins from various points of view which are often indicated on the map, one after another, so that one knows the point of the compass toward which he is looking, etc., until the illusion of actually seeing everything is almost complete, and after a careful course of such pictures he almost seems to himself to have visited the locality. The illusion of depth, perspective, and the isolation of indirect vision are the essential factors of this seeming transposition. If some time in the future these proxy trips should be supplemented by moving pictures and phonographs, as they are sure to be, then the pupils of, e.g., the geography class will take ideal trips through foreign lands, see savages, jungles, industries, and all kinds of life without leaving the classroom.

Literature *versus* Language. Contrary to general practice, all leaders in the teaching of drawing in the grades lay more stress upon the interpretative part of art, that is, upon appreciation of pictures, than upon the ability to draw. The reason for this is very evident. Everybody will use pictures after he finishes school; only a very limited number will ever draw. Consequently a course in drawing in the grades should be much more concerned with getting the children to love good pictures than to execute poor ones. Most people are so much more facile in using words than colors that they seldom resort to the pencil or brush after leaving school, while all use pictures at least for decoration. Many, however, make use of poor pictures because they do not know any better. This is a matter that can be easily remedied, if attention is given to it, as we shall see in a later section.

Moreover, many teachers cannot draw and, therefore, cannot teach the technique of drawing. Formerly they sat supine with folded hands. Now, with this new conception holding force, this is no longer necessary or wise. A teacher with no knowledge of drawing may love pictures, and if a teacher enjoys them himself he can easily teach his pupils to enjoy them. In doing so, he will confer a greater blessing upon them than if he taught them to do a little drawing, and failed to excite their love for pretty pictures.

Summary. The function of drawing is to convey values through tone, color, and form. As such it is both a language and a literature. And of the two, the latter is more important; it is vitally important that the outcome of drawing instruction be an increased love of good pictures.

Standards. The standard of drawing instruction easily follows from the principles stated above. That student is well instructed who can express his ideas effectively through this medium, and who can, through the same medium, discover with accuracy the ideas of others who use it. As stated just above, the latter ability is the more important.

Structure. To express these ideas through drawing, we have certain forms, just as in language we have words, punctuation marks, grammatical rules, and spelling conventions. There are two fields — representation and design: the former dealing with the representation of ideas already found in nature, and the latter concerned with the creation of new ideas to express experiences not reproduced from nature. These correspond, in a general way, to the forms of language known as narration, description, exposition, and argumentation.

There are also three tools that are used in both

representation and design. These are tone, color, and form. Color is composed of three primary colors — red, yellow, and blue. Tone refers to lightness and darkness, and form is self-explanatory. That is, to express any idea, it is necessary to use some color, to give it some shape and a degree of brightness or dullness. These correspond to words, letters, and grammar.

Then, as said above, these are combined according to the laws of composition in each field — laws which are discussed in any work on art for teachers.

Each of these rules and items is intended to make the technique of art better; and, consequently, the artist who wishes to express his ideas faithfully on canvas must utilize these, as the case requires, from moment to moment. Because of this, the pupil who seeks to become an effective artist must be taught all these rules and items if his seeking is not to be in vain.

A serious question is raised, however, about the wisdom of teaching much of this to children in the grades, because of their immaturity and inability to get hold of any rules of technique except the simplest. This will be discussed at length under the " Course of Study."

Summary. Drawing is organized in such a way that, by following its rules, a student may learn to express himself with effectiveness.

Materials. Many sorts of material may be used; but in the grades those commonly utilized are paper, pencils, crayons, water colors, and brushes. Nearly all art teachers recommend these. The paper used is an inexpensive manila, cream-tinted, with colored paper for mounting. The pencils are soft, sharpened to a blunt

point, and never used for writing, so that they may be kept in good condition. Colored crayons may be used on paper, and make a substitute for water colors. A box with crayons of eight different colors should be used. The three-color water-color box should be used, because part of the training that comes from color work lies in learning to mix tints from the primary colors — red, yellow, and blue. An ordinary cheap sable brush is satisfactory.

It is important to note that freehand illustrative and memory pictures can be drawn with an ordinary pencil on ordinary unruled paper, or even on ruled paper if nothing better is available. Sometimes teachers have solved the brush problem by using a toothpick and ink for black and white work, and others have tied horse hair in a bundle and pulled it through a chicken feather quill to make a brush. Where there 's a will, there 's a way. But a teacher ought not to resort to these primitive tools without first of all exhausting every means available to make the school district buy adequate material. As long as teachers make the best of what they have without complaining, they will not get the best they ought to have.

Course of Study. The course of study may be arranged logically, or the organization may be psychological.

If it is arranged in the former manner, the elements of drawing will follow one another in logical sequence, perhaps straight lines first, then circles combined with color mixing, then other principles and elements, so that, finally, having learned the technique, the children may be able to draw something. Upon this plan drawing was taught in the schools as much as twenty-five years ago.

To-day it is not taught in that way because that is not the way in which children learn best. They are not greatly interested in lines, curves, and colors. But they are intensely interested in drawing where they can use it for its intrinsic purpose; they love to draw where the drawing expresses some idea of their own. If it is a picture of what they think or know, they draw gladly. But their lines, colors, and tones are probably very faulty. The drawing of children at the beginning is as inartistic as their conversation is ungrammatical. So the method of teaching drawing is just like the method of teaching language. The teacher lets the pupils draw, and makes corrections as they are needed.

In this way there can be no logical order of presentation of drawing facts. The order is psychological. Drawing facts are introduced as they are needed. The children draw to express interesting ideas, and the teacher corrects at the psychological moment.

There are thus two important questions to consider in connection with the course of study: (1) What are interesting ideas for children to express through drawing? (2) When, in general, is it wise to introduce certain drawing facts? These are the identical questions that we had to ask about language and reading; for we found there, as here, that the method by which good readers and speakers are trained is that of giving them something interesting to work upon, and taking care to correct their errors intelligently as occasion demands.

Interesting Subjects. Children are very much interested in illustrative drawings. At first the child's efforts are mere scribbles which mean nothing and are of use only as practice for the muscles, but by the time he enters school he draws to represent objects and is bold

enough to try anything. He shows the inside and outside of houses at the same time; he portrays the wind, God, and angels. Nothing is beyond him.

This interest in drawing is exactly parallel with interest in language. In the case of language children chatter and talk volubly; in drawing, they scribble and draw interminably. Just as in the case of language, facility in drawing comes only with much practice. In drawing, children in the grades should be given almost unlimited opportunity. We usually allow children to " draw " by themselves to keep them quiet. Otherwise it is looked upon as a waste of time. But it is not. While a boy is drawing on his scribbler, he is getting more real education than if he were learning to spell *phthisis*. For he is expressing what he feels and sees, and is gaining such facility in so doing that if he be given practice enough he will eventually rather turn to his pencil to sketch an idea than describe it in words.

While in the primary grades children can do little but illustrate ideas, not yet being able to copy objects or to design; and while, therefore, nothing but illustration can be taught in those grades, illustration should not be confined to those alone. I am a firm believer in the plan of making it part of every assignment that can be illustrated in every grade. In history the illustrative work may consist of a map or a drawing of a costume. In literature the class may be asked to illustrate one or two of the best points in the story; and if they have been illustrating from childhood up, they will be able to do good work and to enjoy it. Other subjects might be mentioned in which assignments of this kind may be made.

This illustrative work, moreover, may be carried on by a teacher who himself is unable to teach drawing.

Faults cannot be corrected to any great extent by such a teacher, but some faults correct themselves automatically. Even faulty expression is better than none; for, referring to our analogy with language, just as it is better for children to talk ungrammatically in the presence of an ungrammatical teacher than not to talk at all, so it is better for them to illustrate inartistically with a teacher who knows little about drawing than not to illustrate or draw at all.

Nature also provides a great mass of interesting subjects. Children frequently enjoy drawing animals. They enjoy the tracing of leaves, the massing of trees, the filling in of landscapes in color. Great lists of these subjects can be found in any textbook on drawing. Then, too, special occasions provide material for drawing. Washington's Birthday, Memorial Day, Harvest Home, Thanksgiving, Christmas, and May Day all produce a strong motive not only for drawing, but for other forms of construction work.

The decoration of the schoolroom is likewise interesting. In the autumn, leaves, berries, and branches, grain and corn may be used; and in their placing around the room, upon the walls and in receptacles, much good study of design and decoration can be accomplished. The hanging of a new picture becomes the occasion for the training of taste, and the selection of blackboard drawings or stencils produces training in artistic standards.

Summary. The selection of interesting topics for drawing is probably the most important step from the point of view of gaining interest in the subject. All interesting subjects should be canvassed by the teacher in making his selections, but especially every opportunity for graphic illustration should be seized by the teacher whether he himself can draw or not.

Technique by Grades. From what I am able to gather, psychologists and some art teachers seem to agree upon the following points: —

1. Prior to eight or nine years of age, children can do nothing but draw things. They cannot represent, and their drawings do not conform closely to fact. They often have to explain what their drawings mean.

2. From eight or nine to ten they begin to represent objects. That is, beginning with the third grade they can draw from objects. If the teacher sets a leaf in front of them, they can produce something that resembles a leaf more or less.

3. From the fourth grade on, but not before the fourth grade, systematic study of drawing may be introduced. Perspective should be delayed considerably, except in the most rudimentary form.

4. Drawing should not be made too difficult. In the fifth and sixth grades pupils become self-conscious about their drawings. For the first time they see that their work is poor; and if at this time they are given work to do that is too difficult for them, they quickly grow discouraged. Easy problems, then, in the interest of continued pleasure in drawing, should be given all the way through the grades.

5. Water-colors, ink, and crayons should be used much in preference to the exclusive use of the pencil, because they afford practice in the spreading of colors and exercise the fundamental muscles. In other words, the pupil using them need not rely upon fine muscles as he does with the pencil at a time when these muscles are not well developed.

Children are very fond of bright colors, and the teacher should not be too severe in his criticism of these;

for taste in color has to be developed in the child from the barbaric colors of childhood to the quiet and more effective colors demanded by the good taste of the adult, just as taste in colors has developed from the barbaric colors of primitive people to the hues permitted by the canons of the cultured.

6. Just as "language is taught as a means of expression for necessary and everyday use," and as "a few words are taught at a time definitely and thoroughly, and continually employed, that they may be made a permanent possession of the child," so drawing should be taught as an everyday means of expression, and from day to day its rules and principles should be taught simply and thoroughly and when needed.

Summary. The rules and principles of drawing should be introduced as needed. But the children should not be held to too high standards, nor should technique be introduced at too early a period. There should be no systematic training before the fourth grade, and no representation before the second grade.

Drawing Books. Just as with language books we decided not to be their slaves but their masters, and use them as seemed best in each class, so with drawing books. Some sets of drawing books are too formal, are built up on the old-fashioned idea of logical arrangement, and kill all interest in the subject. In some drawing books an attempt has been made to arrange the material to suit the interests of the pupils. But as we saw in the case of the language books, what suits one group might not suit another group; hence the teacher has to select from the book as he sees fit. If the arrangement of the book seems good, follow it; if not, rearrange it.

2. Methods of teaching Drawing

Motive. As we have seen in former chapters, there are the usual three possibilities in finding a motive. This parallel is particularly close in the case of drawing and language. Besides the appeal to generic values in drawing, which are not very effective, we may appeal to the specific need by giving the children interesting topics to illustrate, or reproduce, and then letting the class decide whether the execution is effective, and when not effective how it can be corrected. This is very well illustrated in the following lesson: —

The children were asked to think how a rooster looks when standing and to draw it. This is, presumably, an interesting topic. Any child of eight whom I know would be glad to draw a rooster standing. Suppose these pictures are drawn on the board. The children then may look at each, and the teacher may select perhaps the poorest and have the children analyze it to see what is wrong. They will tell that the legs are too far forward or too far back, making it seem likely that it will topple over. They may discuss other points as to the head, the back, or the wings; and as each point is discussed, corrections may be made by the pupils, each on his own, until a fairly good result has been obtained. In connection with the criticisms, a good picture of a rooster may be produced as a standard to which to refer in case the children have forgotten how a rooster looks. Then, when all is done, they may rub out and try once more. These results may be left on the board as long as other board necessities will permit. Here we have a very simple case of teaching. The children are interested in the subject. They make mistakes. They

become conscious of these mistakes. They study how to correct them (and here they study the technique of drawing, because it is merely a collection of rules intended to cure or prevent mistakes), and they do correct them to the best of their ability.

Drill. From time to time, as occasion demands, certain parts of the subject need to be drilled upon, and in this case the rules for habit formation hold good. First, get a clear initial idea of what is to be done; second, secure attentive repetition; and third, drill till the action becomes automatic.

3. Study for Appreciation

What has been said in the foregoing section has reference only to drawing as a mode of expression. But more important than technique in drawing is artistic appreciation. For while, as said above, few people continue to draw after leaving school and hence have little practical use for this ability, everybody is surrounded by pictures and by art decoration and architectural projects. Everybody enjoys pictures. In the poorest hut you will find a few pictures. On the plains, in the mountains, in attic rooms and basement hovels the searcher will find some sort of decoration. But few people enjoy good pictures and good art. Upholstered monstrosities, colors that clash, highly colored prints, cheap chromos, sentimental catch-pennies deck the walls of many lovers of pictures who are not lovers of the artistic. This is the problem of the teacher — to get pupils to enjoy good pictures and artistic decorations.

Methods of teaching Appreciation. The methods of teaching appreciation may be summed up in two statements.

First, if a teacher wants to get pupils to appreciate good pictures, he must choose the pictures carefully. Not all artistic pictures are interesting pictures. How some people can rave over some of the Old Masters is inexplicable, unless they rave because they are told it is an Old Master. Probably fifty per cent of all classical pictures have no more than historic interest. Consequently the teacher must not complain if he surrounds his pupils with " good " pictures which get no appreciation when he has given no consideration to their subjects. Pictures that please are likely to be considered good. That is one way to tell whether a picture is good or bad. But it may please for two reasons: the subject may be pleasing, as a group of newsboys or a basket of kittens; or, the work may be artistic. It is, of course, easy to find a picture whose subject is pleasing, but whose workmanship is poor, just as it is to find a piece of artistic work with a very uninteresting subject. But children cannot distinguish clearly between what pleases them in content and what is artistic in form. Hence, to get children to love good pictures, the first thing necessary is to select from among good pictures those that are pleasing.

This should, as far as possible, be done by the children themselves. Suppose that it is possible to buy a dozen of the medium-sized Perry pictures, 6 by 10 inches, let us say. In sending for them, the teacher should let the children select from the catalogue. These catalogue pictures are small, but the children can get from them a good idea of the larger ones. It is a very surprising thing that if you allow children to make selections from a group of good pictures, they will select not only pictures that are pleasing in subject, but also those that

are, on the whole, the best from an artistic standpoint.

Good pictures are so cheap now that no school can be excused from having many of the very best in albums and on the walls. It costs a little to get cheap frames. But these the boys can make in manual training; or, if not, the pictures may be put into albums made from old geographies, or bought for the purpose. The whole atmosphere of the schoolroom should breathe the aroma of beautiful prints and pictures.

Second. When a pupil is surrounded by good pictures there is a likelihood of his unconsciously absorbing ideals from the good, so that the bad comes to displease. But examples of bad taste should not be wanting because of the value to be had from a comparison of good and bad. This can be done, to a certain extent, by the teacher's own affirmation, as when he says, "This is a good picture," or, "This is not a good picture." Children get their ideals very largely, though not entirely, from the opinions of those in whom they have confidence.

But, in addition, the children may be given problems to solve which will necessitate their distinguishing between the good and the bad and, therefore, compel them to study the two with care. Such problems are easy to make. For instance, the teacher might set them the problem of finding for a given space such a picture as would produce a quiet effect. This would lead the pupils to select the quiet from the gaudy. They would pass judgment upon all the pictures coming under their eyes and would distinguish among them according to whether they were gaudy or quiet pictures. The teacher could at the same time lead them to affirm and believe that the quiet effect was the more pleasing.

He could do so, that is, if the proper time for such effects in the pupil's life had arrived. For, as said above, the taste of children as of the race develops but slowly from the barbaric to the cultured. When the children are young they will enjoy the gaudy pictures, but by patient effort on the part of the teacher, good pictures will come to displace the poor ones.

Often, too, the liking for good pictures will be enhanced if the children are taught the story of the picture. To tell imaginative stories about a picture to little children heightens their love for it. To pick out interesting things in the picture also increases interest. The little angels in a Fra Lippo Lippi are often the first tie to bind little children to it.

Picture study is correlated with language study, and in this correlation the content of the picture is analyzed. For instance, in studying the content of Watts's "Sir Galahad" one composition book deals with it thus: It first shows the picture; then it tells the story of King Arthur's Knights. It next asks for the meaning of such words in the story as bring out the ideas in the picture; for instance, *courteous*, *vow*, *solemn*, *shrine*, *fearless*, *gentle*, *high-spirited*, *charger*, *shield*, etc. Then follow a few questions, asking to what the life of a knight was pledged, how he took his vow of knighthood, and so on. The armor of the knight and the harness of the horse are carefully noted. Nowhere is anything said about balance, rhythm, or harmony. The lesson merely gets the children interested in Sir Galahad and in love with him, so that the atmosphere of this picture, artistically good, may be pleasing to them.

Summary. To get children to appreciate good art it is necessary that good pictures with interesting subjects be

chosen for them, and that they be surrounded with these; that studies be made of the subjects; that attention be called to good form by having children choose good and bad pictures for the solution of some problem in hand; and that the teacher strive always to accentuate his preferences for the good.

Traveling Galleries. County superintendents can well foster a plan by which a traveling collection of beautiful pictures in frames can go from school to school. In this way 100 schools might have 400 pictures in 100 sets of 4 each, some of which would be duplicates. These could be passed from school to school each two months, and during the term each school could see and study 16 pictures — all classics and all interesting to children. Or, if the county superintendent has not the opportunity to do this, three or four, or even two, neighboring schools can exchange pictures, framed or unframed, and thus give children access to more pictures than any one school can afford.

4. Class Mechanics

Alternation. Special drawing classes may begin with the fifth grade in the country school, though previous to that much illustrative work should be required. But in the fifth and sixth grades systematic work may begin. The fifth grade may alternate with the sixth, and the seventh with the eighth, because they are about equal in abilities in each case. The course will be determined in great part by the needs of the classes from day to day.

Correlation. Drawing has its widest use as an illustrative device. It is used in every subject in almost every course of study. Language and literature call for illustrations; geography for maps, pictures, and diagrams; history, for charts and maps; civics, for charts

and graphs; arithmetic, for diagrams and graphs; the manual arts, for plans; and so forth. Good teaching requires as wide a use of drawing as possible.

It is particularly useful in the manual arts, where in many cases the plan is an absolute essential in carrying on a manual project. These plans need not be elaborate, but they are necessary. They cannot be made by little children, because they require some skill in exact measurements and are of real value only where a complicated project is on hand; and if there is no need of them, they should not be attempted.

The Drawing Class. I do not think it wise for a teacher who has not studied drawing under a good teacher to try to teach it. He may teach picture appreciation and may require uncriticized illustrative work, but I do not see that he can do much good with a systematic course. But if he has had such a course of study, the little class details will be quite familiar to him. It is because of this fact that I do not give any of the details of conducting a class.

REFERENCES FOR CLASS READING

Block. *Primary Methods*, vol. II, pp. 80–153. (General.)
Hall. *Educational Problems*, vol. II, pp. 548–54. (Value of drawing.)
Kern. *Among Country Schools*, pp. 85–102. (Schoolroom decoration.)
Rocheleau. *Intermediate and Grammar Methods*, vol. II, pp. 266–358. (General.)

CLASS QUESTIONS

1. Trace the parallel between language and drawing. In what respects are they alike? In what respects different?
2. Mention five cases in which you illustrated what a thing looked like because you could n't describe it clearly.

3. Under what conditions is drawing a waste of time by primary children?

4. How do you tell whether a picture you like is a good picture or not? Is it a sure test? How do people in general decide whether a picture is good or not?

5. Is a picture that is popular a good picture necessarily? Who settles the question of a picture's quality?

6. If you were buying pictures for yourself and you had to choose between a good picture you did not like and a poor picture you did like, which would you buy? Why?

7. If you have studied drawing, name ten rules of drawing that should be observed. In what order would you teach these to an eighth-grade class?

8. When you were in the first grade, did you enjoy drawing? What things? Do you now enjoy drawing? Describe your experience in drawing as you remember it, stressing the points brought out in the chapter.

9. Secure three sets of drawing books from the library and criticize from the standpoint of difficulty, of interesting subjects, or arrangements of topics.

10. What is the best method of securing motive for drawing exercises?

11. Name five points in drawing that need to be drilled upon.

12. What pictures of all you know do you like the best? Are the pictures you like on the whole good pictures artistically? If so, have you gained this liking naturally, or have you been educated to it?

13. What attitude should one take toward the colored Sunday supplement? What is there good in it? What bad? How can you get good Sunday supplements?

14. Name five great pictures that you do not like.

15. Describe a color scheme and plan for the decorating of the classroom in which you are now working. Do you agree with the other members of the class? Whose plan is the best?

16. Take a textbook in reading and, running through ten pages of some story in it, pick out five situations that might be illustrated. Make one of the illustrations yourself.

17. What use can be made of a rural schoolhouse in teaching art appreciation? Describe what you would have the children do with some country schoolhouse which you know well enough to treat from memory.

CHAPTER VII

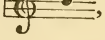
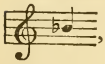
MUSIC

1. Subject-Matter

Music and Reading. The most illuminating standpoint from which to study methods of teaching music is to trace its similarity to reading. For with one or two minor exceptions it is exactly similar.

We saw in the chapter on reading that there were five factors in the reading process. *First* of these is a writer with something he wants to say; he has some idea to give to the world. Exactly similar is the case in music. A musical composer has some feeling to express, some idea to present to his public. Beethoven sits in the moonlight and is moved to express his feelings in " The Moonlight Sonata." Music, like literature, is made to express some feeling, some idea, some element of value in the experience of the one who writes it. *Second* is the medium through which he expresses his idea. He may use sound, or he may represent these sounds on paper by means of convenient symbols. He may utilize either the spoken word or the written word. In either case he follows the rules of grammar and composition in expressing his idea. If he writes his words, he must also pay attention to a system of symbols called the alphabet. In like manner the musical composer who wishes to express his idea in music has two media. He may use sound alone; that is, he may sing his feelings or play them upon a musical instrument; or he may put them on paper. In either case, he follows some very definite

rules of musical composition, just as definite as the rules of English composition. But if he decides to write his music, he has to use a musical "alphabet" consisting of notes and staffs and clefs. These notes are arranged into groups, and the groups in a way express ideas, much as sentences do. The parallel here is very close between composition of words and composition in music.

These symbols in music are more difficult to master than verbal symbols. This is so because music adds pitch to the verbal alphabet. In the verbal alphabet *b* is *b* wherever it is seen, and *c* is quite different in sound from it. *Do* as a spoken word sounds quite different from *re*. But as music, it not only sounds different in vocalization, but there is also a difference in pitch. *Do* is *do* at one pitch, and *re* is *re;* but *re* is also an interval higher than *do* in tone. Then, too, the written notes do not always mean the same. In this case,  , one learns that the notation stands for a certain tone called *b* natural, let us say; but by a slight change, thus,  , it is no longer *b* natural, but *b* flat, a half-tone lower. In verbal symbols the vowels have a few different sounds, and a few consonants, such as *c*, *g*, and *s* have two or more variations. At most, however, there are only a few of these in comparison with all the tones in music. The task of mastering the symbols of music is, therefore, rather complicated. This is particularly true of those people who do not have a fine sense for tone. For one may know *do* from *re* as spoken, but may not be able to place *do* at one pitch and separate it from *re* with one interval between. Such people are called monotones. The number of those who can never

distinguish one tone from another in pitch is very small. Most monotones fail to distinguish the pitch of notes merely because of lack of training.

The *third* factor in the reading process is a reader who has to decipher the symbols, interpret their meaning, and get into the experience of the author, so that he may think his thoughts and feel his feelings with him. In music we have again a similar situation. The music reader has to decipher his symbols, interpret their meaning, and get into the experience of the writer, so that he may think his thoughts and feel his feelings with him.

In reading, the *fourth* factor is a vocal mechanism composed of such organs as tongue, palate, teeth, lips, vocal cords, lungs, and diaphragm. In singing (and it is of this alone that I shall speak), exactly the same organs are used, in a slightly different way, in so far as pitch enters into the musical expression.

Finally, there is an audience whose mental state the reader hopes to bring into accord with his own and that of the writer. The reader tries to make his audience feel what he and the writer already feel. Here, again, the parallel is so exact as not to need elaboration; for the singer tries to make his audience feel what he believes the composer felt.

Summary. There are three important things to observe in teaching music. These are, first, a set of symbols to be mastered; second, a vocal mechanism to be brought under control; third, a musical reader or interpreter who will try to get at the meaning of the composer and will then interpret it to an audience.

Function of Music Reading and Composition. Music is a language with symbols of its own. As composition

it expresses valuable experiences through tones and their symbols. As oral composition, it expresses these experiences in tones; as written composition, it puts them upon paper by means of certain symbols. As silent reading it interprets these symbols for the reader; as oral reading, it gives the interpretation to an audience. Such are the functions of the different phases of musical expression. Of all these, two need to stand out in the school.

An effort should be made to teach children to read musical notation, and if this effort is continued consistently, there is every chance of its being successful. But, of more importance is the development of the love for good music. The parallel of this to drawing is evident, since one of our chief purposes in teaching drawing in the schools is to develop a love of good pictures and tasteful decoration. Under the head of drawing, it was pointed out that after the pupils leave school they make little use of their ability to draw or paint. In music this is not so often the case; for if the notation is learned, adults get much pleasure from it all through life. Nevertheless, it is still true that emphasis should be placed upon the love of good music, rather than upon skill in reading notes.

This means that piano players with a good library of rolls should be used whenever possible. If a country school can afford a piano, and many can, it should be furnished with the player and as many rolls as can be purchased. To get the best results, these rolls should be selected by children, either the children in the school concerned, or by other children. So, also, there can well be a traveling library of music rolls, through which different schools may exchange with each other.

But when the piano player and the piano are too expensive it will still be possible for the school to secure a phonograph. An objection may be made that it will be damaged in the school; but it can easily be kept under lock and key from thieves at night, and in the daytime its use can be regulated by the teacher. This phonograph, together with a number of the best songs, may be purchased at a very reasonable price. Here, again, the children should decide which among the best they prefer. There is more danger in selecting from phonograph material than from pictures such as the Perry series or the Brown, because the pictures have been selected with greater care than the phonograph music. But a little reasonable care will eliminate poor songs before the pupils get a chance to select them.

This effort to develop love for music in school lays emphasis upon note singing. Many people enjoy singing who have no ability to read music. So while we teach boys and girls to read music, we should not leave them to their own efforts in applying this ability to singing songs. If they acquire sufficient skill to read, and thus to learn music for themselves, we should be satisfied; but while they are getting that ability, and in case they do not get it, they should be learning songs all the time by ear. The necessity for this is clearer if we refer to our parallel with language and reading. For our purpose in school is not merely to teach children to gain knowledge for themselves by reading. Teachers tell them things; they are told things outside of school; and they repeat these things to others before they know how to read. They can do it if they never learn to read. And in an exactly similar way children should be "told" songs; that is, they should be taught them by ear and

should repeat them by rote before they know how to read music, or even if they never learn to read. Not to be able to read words is a great calamity, because there is so much to learn that can be found only in print. The number of musical selections, however, is much smaller and may be had by depending upon musical " word of mouth." Of course it is preferable that children be able to read music, but it is very important that they learn many good songs by rote.

SUMMARY. The aim of music teaching in the grades is primarily to develop a love for good music; secondly, to develop an ability to sing good music; and, thirdly, in a smaller degree, and as a means to the first and second, to develop the ability to read music.

Standard. In brief, the standard by which to judge school music is exemplified in a room full of children who love to sing beautiful songs, and are able to sing them with good expression and by note. A class that sings by rote is scored high if it loves its songs and sings them with expression. A class that sings by note and that loves its songs is graded higher than one that loves its songs and sings only by rote. A class that loves music, but shouts or sings shrilly, thus not using good expression, is not graded so high as one that sings sweetly and with good expression.

The Course of Study. The term music, as used in the schools, is very broad and includes, at least, music reading, music writing, music composition, and music literature. But we shall concern ourselves here chiefly with music reading and music composition; and of these two, most stress will be put upon the former.

The course in music reading corresponds in a general way with that in verbal reading in that in both there are

primary reading and advanced reading. In the former, the pupils learn the symbols, and in the latter they devote their attention to the more facile use of these symbols. Primary reading in music is much harder than in verbal reading, for reasons already given; and practically the whole of the eight grades are necessary before the rudiments are learned so that a pupil may read music with as great facility as third-grade pupils read words. Consequently, so far as the grades are concerned, music reading is essentially primary reading.

The elements of the reading symbols are the notes, the staff, the clefs, and the keys. These are the mechanics of notation corresponding to the alphabet, spelling, and writing, Melody — with scale, intervals, tone, pitch, rhythm — is an element entering into primary music reading.

In general, it seems that at present music teaching has not advanced beyond the alphabetic method. What I mean can be made clear by reference again to reading. In teaching reading we begin with interesting words and after a while study phonics and letters. In music "snatches" or phrases probably correspond to words in a rough way; but only a few teachers begin the study of music reading with these written on the board. We begin with single notes, or musical "letters," and from these run the scale. We then take different intervals and different keys, and so on to the reading of selections.

The "sentence" method has been developed by Farnsworth, a reference to whose work is given at the end of the chapter. But it has not yet percolated into the methods of the rank and file.

There is no accepted statement about the course of

study in technical music. And this need not be a matter of great concern; for teachers who cannot sing will not teach it, and those who are trained will use their own system. The same principles for trained singers apply here as in other subjects. That is, the teacher should use the adopted text with judgment, omitting and adding as seems best in the light of his knowledge of the needs and ability of his pupils.

In all grades the voices of the children should be light in quality, smooth, and free from harshness. All singing should be intelligent, with good phrasing and proper attention to the sentiment of the words. It should be remembered that good singing is one aim of music in the schools; and that love of song, and the desire to express one's self in song, should result from the study.

Music Books. Music books may be followed if the teacher takes the same care in using them that he takes in using every other textbook. That is, as in literature, songs not interesting should be omitted; work too difficult should be taken up after other work less difficult; and supplementary songs may be introduced. It is a matter of great regret that many music books do not insert more of the songs that appeal to boys and girls. One of the reasons why seventh and eighth-grade pupils affect to despise music is because the songs they are taught are often of the "Little birdie in a tree, sing your pretty song to me" type. The careful selection of good stirring music will do much to hold their interest and make them proud of singing, rather than self-conscious about it.

2. Motive

Here again the parallel between reading and music will furnish us with our method. The first essential in getting a motive for silent or oral reading is to have material that is of value. Likewise, the first essential in getting interest in music reading is to have songs whose content is interesting to pupils. Music teachers frequently do not have songs as virile as they should be for boys, or as grown-up in sentiment as the case demands. Very often the songs are manufactured for use as class exercises, the bass, tenor, or alto having been simplified in order that it may be read easily by young pupils; and this simplification is often made at the expense of variety.

Some teachers say that children get tired of rote singing without technical instruction. But the only reason for that is the lack of interesting songs. Children never grow tired of singing songs they enjoy. In every grade there should be much rote work — singing just for fun. It is better to keep up the interest in work with rote singing and to proceed no faster than is convenient in teaching the technique, because rote singing with interest is much better than note singing without love of music. If one drives children into the technique too fast, the children lose their love for the subject and never gain the ability to read by note. So, from every point of view, it pays to go slowly — to saunter through the technique.

An interested audience helps in this way. If children are allowed individually or in groups to learn good songs at home and bring them to school to sing to the other boys and girls who do not know the songs, much interest

is aroused. A new and catchy air that is musically good is well worth introducing to the class. The pupil bringing such a song may be allowed to teach it to the class, words and all, either in school, or before or after school hours. This gives a genuine interest to song singing and song learning. Incidentally it uncovers wells of interest in music of which frequently the teacher has never dreamed.

Chorus work may be fostered to the great advantage of interest. All the children may carry the melody, or they may sing the different parts, as they are able. Groups of half a dozen or less may work together and get their voices in unison. When this has been done, the pupils may do choral and festival work in the community, if the teacher is able to conduct it. Musical festival programs need not be performed by finished artists. The chief pleasure to be got out of them may be personal and not artistic. Even when the teacher cannot lead this work himself, he may act as business manager and induce some local singer to do the leading. The great objective point is not technique or artistic finish, but fun — happiness in singing and in expressing one's self through music.

Correlation. Interest comes also through correlation, and correlation may be much wider than one is inclined at first to think. For instance, in connection with geography there is an almost inexhaustible mine of material in the songs of the countries and nations studied. Surely there is no time lost in learning the best of the folk songs or national anthems, because they express in a very subtle and effective way characteristics of the country that cannot be had from books. So, also, music is closely related to history. In America " The Star Spangled

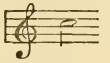
Banner," " Dixie," and " Yankee Doodle " have each an illuminating effect upon the study of certain events in history. In literature, the connection is still closer. If the music to a poem is good, it should be taught with the poem. Is there anything wrong in teaching the music to a poem as part of the literature lesson? Assuredly not, since the music often lends an inestimable charm to the poetry and heightens the literary effect.

Summary. Interest in music comes through the selection of interesting songs, and in a slow and thorough sauntering through technique. This may be heightened by the use of special occasions, chorus work, correlation and the providing of opportunities for children or groups of children to learn songs to sing before the rest of the class.

3. Learning to read and compose

Reading Music. The order usually followed in learning the symbols of music is the following: *First*, the children sing by rote until they become acquainted with a large number of songs. The selection of these songs we have already discussed. They must be both good and interesting to the children. *Second*, children who are monotones should be trained to sing in unison. This can best be done by having all the class unite in sounding a single note and practicing upon this as a beginning until the monotones are able to sing in unison. Seldom are they physically defective. Practice will usually remove the difficulty. *Third*, the scale may be learned as a melody and may be sung in different keys and both up and down. Parts of tunes may be given to see if the pupils recognize them, or to have pupils finish them. Then, *fourth*, the notation may be taught. And, *fifth*, after the notation has been taught, reading may begin.

In the fourth and fifth steps we have the greatest

difficulty because of the complexity of the notation. Here specific methods cannot be given. In general, what has to be done is to train the pupils so that when they see such a note as  they will be able to associate it with a sound "in their heads." That is the whole sum and substance of the matter. There is no reasoning about this connection. It is entirely a matter of drill.

Drill. The rules for making such connections have been discussed in every chapter. The teacher has, *first*, to give the pupils a clear initial picture; and, *second*, to continue attentive repetition until the connection is automatic — that is, until whenever they see a note on a page they can hear the sound in their heads. The important point is that what is taught should be made *automatic.*

Expression. With children expression comes naturally, as in reading. If a child does not feel anything, he will express no feeling. Children often have voices that are harsh, nasal, or cracked. To these the rule applies — to make sweet voices, select sweet songs and get the children to feel their sweetness. If they really feel the sweetness of a slumber song, they will sing it like a slumber song. If, when they feel the spirit of a song, they still have defects in their singing, these should be cured, as in reading, by exercises in enunciating, breathing, and phrasing. The parallel holds exactly.

Musical Composition. It may never have occurred to you that while a study of English includes a study of composition and would not be complete without it, musical composition is not taught in the grades. Music study consists almost entirely of reading. If this were

the case in English work, we should feel that the work was very one-sided.

It never occurred to me until I was grown up that when a boy I had used music as I had used words, as a means of expression. I well remember making up tunes to which to sing words. Sometimes these were very pathetic tunes intended to be in keeping with sorrowful words, such as the dying expressions of a great hero. Sometimes they were light and joyful. If, however, anybody had preserved those tunes, I am quite certain from what I know of my musical ability at a later time, that they would be found to be unmelodious, sung in several different keys in the same selection, and guilty of the violation of many musical laws.

But this is no argument against the exercise. We allow children to use words, even though they break rules of grammar, composition, or pronunciation. We are anxious to have them use language, because it trains in facility of thought and of expression. All children sing " tunes " — often very badly, to be sure, but often just as musically bright as the language they use is grammatically quaint. All that is necessary in order to treat these musical compositions like written language is a teacher who can write down a tune when he hears it sung. It is not uncommon for trained musicians to be able to pick out a tune and write it on paper. If a person has had training enough to do this, he probably knows enough about musical composition to know how to correct errors, and hence he can with great interest to himself and profit to the pupils encourage them to make up tunes which he writes down as they sing. These will not be great tunes. But we do not condemn a verbal composition because it is not so great as a paragraph

from Emerson; nor should we condemn a musical composition because it is not the equal of one of Schubert's.

Nevertheless, the pupils sometimes do very creditable work, as the following instance will show. This lesson was prepared under the direction of Mrs. Mary Root Kern, under conditions stated in the quotation:[1]—

Illustrative Lesson. A stenographic report of the process of writing the text for a song by a group eleven years of age is an illustration of the method of procedure.

The following three lines had been made the week before:—

> The icicles hang from the windows high,
> And the wind goes shrieking and howling by;
> The bright moonlight shines down on the snow,

Some one wanted an adjective for snow and suggested "glittering," which was objected to on account of rhythm.

> And one little rabbit goes jumping below

was suggested for the last line. Some of the children objected to having the rabbit, saying that it was such a cold night, he would not be out, and suggested instead: —

> And hunters through the woods do go.

Another child suggested that the hunters would not be out at night; another insisted that that would be just the time they would be returning from a deer hunt. Some one wanted: —

> And hunters walking about below.

Another suggested substituting "Indians" for "hunters." Another suggestion was: —

> No flowers are blooming down below.

From time to time the teacher re-read the lines, so that they could get the rhythm; and, after a while, none of the lines suggested after the first being regarded as equal to the first, they went back to that. "Little," "lonely," "hopping," and "father" were suggested as describing the rabbit. "Lonely"

[1] The lesson and the music, quoted from the Elementary School Record, are here reproduced by the kind permission of the Chicago University Press.

was finally accepted as best suited to the verse. "Hunting" was substituted for "jumping," as more suggestive, and the line as finally accepted read: —

And one lonely rabbit goes hunting below.

The teacher suggested that, as the first verse was about night, the second be about the day.

Some of the children wanted a chorus. The teacher suggested that this was not a jolly song, so that it did not lend itself easily to a chorus; but if one appropriate could be thought up, it could be used. None could be thought of at the time, so the second verse was begun.

The first line suggested was: —

As the day grows near and the night grows far,

"Comes," and finally "draws" was suggested in place of "grows," and "passes" in place of "grows far." "Passes away" was objected to on account of the number of syllables.

The teacher suggested that, as they were going from a night verse to a day verse, it would be well to put the night idea first. It was then given: —

As the night disappears and the day draws near,

The next line was at once suggested: —

Again the cheerful birds we hear.

The next two lines were suggested as: —

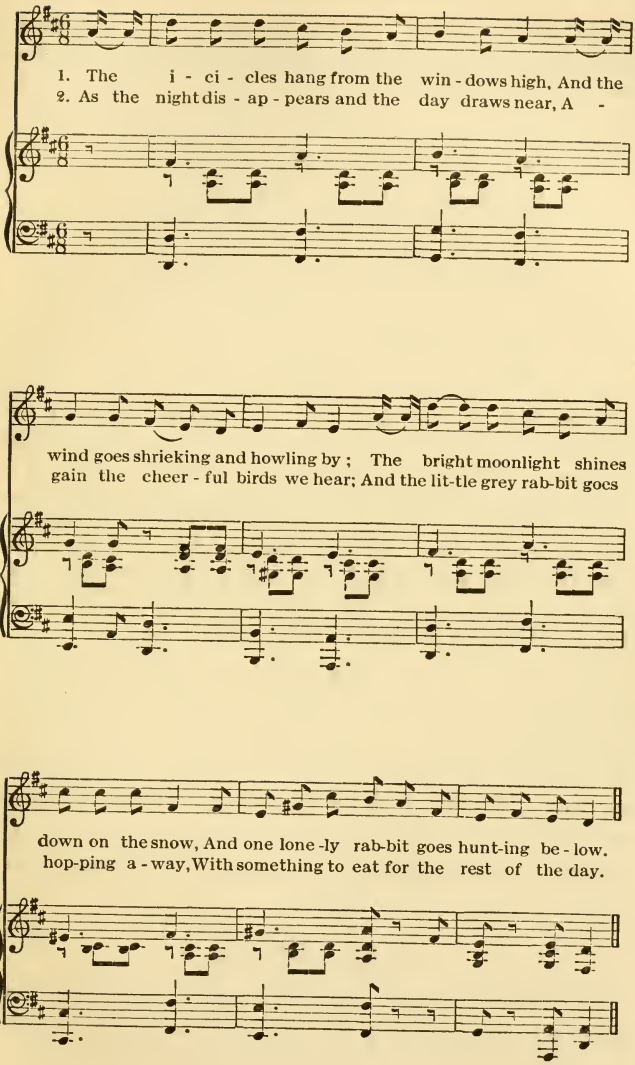
Jumping about on the fleecy snow,
Hopping around do the snowbirds go.

One of the children suggested that the snowbirds are about a house, and she wanted the song about a lonely place on the mountains. The last two lines were objected to on the ground that birds had just been mentioned. The child who proposed the line said she was simply telling what the birds did. Then this was opposed on the ground that in the first verse the rabbit had been doing about the same thing.

The teacher suggested that they refer again to the rabbit and tell what became of him in the day.

And the same little rabbit goes hopping away,
For he's found something to feed him that day.

A WINTER SONG



was suggested. "Same" was objected to, "little" suggested in its place, and finally "gray" accepted. "For" objected to, and "because" rejected, and finally "with" accepted. One of the children wanted to suggest "*manger*" for "to eat," saying that French words were often used in a song.

The whole song as finally accepted read: —

The icicles hang from the windows high,
And the wind goes shrieking and howling by;
The bright moonlight shines down on the snow,
And one lonely rabbit goes hunting below.

As the night disappears and the day draws near,
Again the cheerful birds we hear;
And the little gray rabbit goes hopping away
With something to eat for the rest of the day.

The melody of this song was given without criticism by the four members of the group present, one musical phrase from each child in succession, so that text and song were completed in two half-hour periods. The smaller the group, the less confusion arises from various phrases being given at the same time. To avoid this confusion it was at first attempted to give each child in turn an opportunity to offer a phrase, with the result that none were offered. The work cannot be done under formal restrictions.

Conclusion. The foregoing work on musical composition is given as an ideal toward which a few musically gifted teachers may work. It is not intended that many teachers should teach musical composition, because not many can; but those who cannot, will, I am sure, be interested to see what startling results may be accomplished by the application of methods of teaching language to the teaching of music.

4. Class Mechanics

Order of Exercises. The recitation should begin with rote songs, proceed to a drill upon special faults — perhaps those arising in the rote singing, continue with a

study of new points, and close with sight singing. This order may vary from day to day. But the important point is that there should be more singing than talk about notation and other facts.

Absolute attention is necessary to the study of drill exercises and new work, because music is so much a matter of drill, and drill depends upon attentive repetition. The singing by rote may be a relaxation.

There should be monitors whose duty it is to pass the singing-books back and forth. Classes may sit rather than stand. The music period affords a good opportunity for the raising of windows, especially if the children may march around the room and sing at the same time.

Suppose you cannot sing? If a teacher cannot sing, he cannot, of course, give any training in musical technique. But under certain circumstances he can give the children opportunity to sing. All that he needs is to have a pupil or two who can lead singing. These pupils do not need to be able to read music, so long as they confine the singing to tunes they know. Or, a patron in the district is often willing to give instruction once or twice a week, at which times new songs can be taught. Certainly a phonograph can be secured as easily by one who does not sing as by one who does.

Alternation. It is suggested that all children sing together; and that when a book is used, each fourth exercise be studied each year. The first, fifth, ninth, etc., the first year, and the second, sixth, tenth, etc., the second year. This will take the whole class through the book once in four years. And since there is much to learn in the way of technique and but a short time in which to learn it, the repetition for the second four years will probably not be felt to any great extent.

REFERENCES FOR CLASS READING

BLACK. *Primary Methods*, vol. II, pp. 211–32. (Singing in the primary grades.)
FARNSWORTH, C. H. *Teachers College Record*, January, 1903, pp. 25–57. (Teaching notes in elementary school.)
HALL, G. S. *Educational Problems*, vol. I, pp. 113–23.
KERN, M. R. *Elementary School Record*, no. 2, pp. 33–48. (Song composition.)
ROCHELEAU. *Intermediate Grammar Methods*, pp. 387–410. (Advanced singing.)

CLASS QUESTIONS

1. How many different sounds does the dictionary give the vowel *a* in speech?

2. How many different sounds are given to the note *do* in singing?

3. Have you ever seen the piano player used in schools? The phonograph? Describe the plan and results.

4. If you found that the pupils who loved singing sang loudly but could not keep the tune, what would you do?

5. Do you in church enjoy the congregational singing more than you do the sermon? Do any of your friends?

6. Take three sets of music books and compare the order of subjects in their courses of study.

7. Have some one among your friends, who is able to do so, write out some songs after hearing them sung.

8. What do you need to prepare yourself to teach musical composition?

9. How would you secure rapid reading? Compare your answer with the same question as to verbal reading.

10. What are five of your favorite songs?

11. Describe plans other than those mentioned in the text for using an interested audience to secure interested singing.

12. Is an orchestra practicable in the country school that you teach? Why?

13. Describe the plans by which a musical festival was carried on in any country community where you have seen one.

14. Mention ten cases of good correlation of music with poems studied as great poems, not merely words for music.

15. Correlate music with agriculture. Did you ever notice the large number of poems of which agriculture is the subject? It is striking. Name a dozen such poems.

CHAPTER VIII

HANDICRAFTS

1. Subject-Matter

Point of View. Within the last generation, which has witnessed the introduction of so much that is new and valuable in educational theory and practice, nothing has been introduced or has had such far-reaching effects as the emphasizing of constructive activities in school. Outside of school it was recognized by everybody that children were always doing something. But these things they did not with assistance, but in spite of instructions and commands. Now, however, it is recognized in school that children think not only with words, but with their fingers, and that many a boy thinks more clearly with his hands in pottery or basketry or bench work than he does with words in geography or grammar or arithmetic. It is often found that a boy who has trouble with geometry on paper gets a fine hold upon it when it is illustrated in a machine or a section of lumber. Then, too, it is found that the muscular exercise of the hands and arms in handwork is just exactly the kind that is best for the muscles of boys and girls.

Little of this work with the hands produces anything that is of practical value to adults. It is not well enough done usually to be utilized; or perhaps I should say that even if it were so well done, its usefulness would not be the reason for studying the handicrafts. For years this was the great objection urged against it. But this is mostly overcome now, except where parents are not yet

used to it. The real reason for its use is that it gives boys and girls a kind of exercise, both muscular and mental, that they need badly at the time when they crave manual work — muscular training and thinking with the hands instead of with words only.

That one can think with things and not with words is shown whenever we work with tools and methods of which we do not know the names. Thousands of people are of this sort. Show them the thing in concrete and they will understand at once. Describe it in words, or have them think the same thing in words, and they at once become confused.

Summary. Educators have recently appreciated the constructive instinct, and are now attempting to give it the intelligent and abundant exercise it ought to have. This is done in the grades through what is called the handicrafts.

The Handicrafts. This term is very indefinite in its content. It includes weaving, clay modeling, paper cutting and folding, whittling, sewing and cooking, raffia work, basketry, and mat making, work on wood with hammer and saw, etc. It must be remembered that all this work has come into the schools within the last twenty years, and that no one is sure yet what should be included and what left out. Indeed, it is to be hoped that the schools will not restrict the use of this material, except where it is found to be unsuitable, and that instead of systematizing it, they will allow much freedom and latitude in the choice of material.

In this chapter it is not possible for us to treat all of these subjects in detail. In many books on them, some of which are mentioned at the end of this chapter, will be found statements of material that can be used and

processes that can be carried on in the school. We shall take the opportunity, in lieu of a detailed discussion, to examine a few principles of general applicability in the teaching of these subjects, particularly as it may be done in one-room rural schools.

Functions. The function of each of the items included in handicrafts is different from that of the others. The function of weaving is to join material by interlacing. The function of bench work is to make articles out of wood. The function of basketry is to make baskets. These are the reasons for their continued existence.

In school, while the pupils see the functions of each as just stated and use the subject-matter for its essential purpose, and while the teacher sees the same purpose and helps the pupils to realize it, he sees in it also three other uses of which the child is not aware. Two of these we have mentioned. *First*, it provides a training for the muscles involved; *second*, it gives a good basis for concrete thinking; and *third*, which was not mentioned above, it gives pupils an opportunity to understand something of the industry that lies behind it. For instance, grinding wheat with stones and with the mortar and pestle, as the primitive peoples do, gives a fine introduction to a further study of the milling industry. To go into a flour mill mystifies a child because he cannot understand all the process of manufacture; but if he has ground wheat himself in these elementary ways and knows that that is the fundamental part of milling, he is prepared to study the refinements of the modern mill, since all the complexity he finds there is the result of efforts to make this grinding more perfect. This latter indirect function of the handicrafts should always be borne in mind by the teachers. For in this day of high

specialization, children do not get a knowledge of the industries. City people buy their bread from a baker, their shoes from a shoe store, and most of their clothes ready-made; and the city child does not get the opportunity his grandfather had of seeing bread made, shoes manufactured, and cloth woven in his father's home. The country boy sees one great industry and becomes acquainted with it in some detail. But agriculture is about the only occupation that he does see, and so he ought to be given in school some understanding and appreciation of the other industries. Geography, of course, gives some account of them; but the handicrafts will give him a chance not only to see how they work, but also to carry on for himself the actual process in a simple, elementary way.

There are really two ways of teaching any branch of handicraft. Weaving, for instance, may be studied merely as a method of putting things together, and the children will in a short time gain considerable skill in the process. This is the narrow way of teaching the subject. On the other hand, if a teacher wishes to make a cultural subject out of weaving, he will be sure that the children get what the narrow teacher would give them, but in addition he will supplement their work by a study of looms in the neighborhood; pictures of Indian weavings of wool and grasses; and descriptions of great weaving mills, or, if possible, visits to them. The ability to make little mats and hammocks is desirable as far as it goes, but it represents only a fraction of the benefit that can be secured from weaving when the cultural element is added.

Summary. The intrinsic function of each of the different forms of handicrafts is to make articles by distinctive methods,

such as weaving, carpentry, or clay modeling. The teacher should be sure to have in mind, in addition, that indirect value of the work which comes from making it a means for understanding and appreciating great modern industries.

Course of Study. Each of the processes involved in the handicrafts group has a different purpose and, of course, has its own structure or way of doing its work. There is in weaving a technique connected with the combining of the warp and the woof, and the making of appropriate designs. Sewing has its different stitches, and cooking its baking and mixing processes.

Because of their number and simplicity I shall not consider them in detail. Our discussion will deal only with the question of arrangement of topics.

There has been in the handicrafts, as in all other subjects, an effort to have both a logical and a psychological arrangement of material. The Russian system, for instance, which was the early form of bench work in this country, began with exercises in joint making, sawing, turning, and so forth; and after these had been mastered, the pupil was allowed to make some article involving these. This, the reader sees, is exactly parallel with the old alphabetic method, in which the elements — the letters — were taught first, and later were combined into words.

More recently a new school has arisen which takes the view that we should start the children to making useful or interesting things and, as occasion arises, teach them how to make a joint, plane a board, or saw a plank. In this way, the processes will be taught as they are needed. This gives what we have called a psychological organization of subject-matter. And with this point of view, I am in accord.

Boiled down to its simplest terms, the way to teach handicrafts in rural schools is to let the boys and girls make some things that they want to make, and to help them by teaching them the tricks of joint making, sewing, or weaving, as need for these processes arises. The problems they select should not be too ambitious: out of the many things they want to make, those should be selected which are easiest.

The Teacher. A subject such as the handicrafts, without formal organization, cannot teach itself. There is no textbook that organizes it well, and let us hope that there never will be; for as soon as it is worked out into a textbook, it will be difficult to adapt it to local conditions and to keep it vital.

So, in the absence of a text, the whole thing depends upon the teacher. If he is resourceful, he can make the subject the most useful in the course, and the most interesting, too, for that matter. If he lacks resourcefulness and information, he can do little. It all depends upon him. For the children love to use their hands, and all that a teacher has to do is to keep them supplied with interesting work.

The Curriculum. Nobody knows how the work should be organized. My opinion is as follows: —

In the seventh and eighth grades sewing and carpentry should be taught. The seventh and eighth grades may alternate in each subject. Cooking, if taught, should come in the same grades and should alternate.

In every grade the handicrafts should be used to illustrate other work and make it easier to understand.

In the first four grades many of the primitive industries, modern industries, clay modeling, weaving, and so forth, should be taken up; and, in fact, in the first and

second grades simple industrial processes should make up three fourths of all the work the children do.

This leaves the fifth and sixth grades dependent largely upon illustrative work, which I think is wise.

2. Carpentry

The Equipment. For rural schools the minimum cost of equipment is nothing in those places where donations are made. But where all articles for bench work that cannot be made by the pupils are bought, the lowest cost per pupil is probably $8.92. To show what this includes, I quote the list from Crawshaw and Selvidge, a book listed at the end of the chapter.

EQUIPMENT FOR RURAL SCHOOLS

Handy saw, Bishops	$ .70
Brace (second grade)	.60
Auger bits, 3-16 in., 3-8 in., 1 in., Russell Jennings	1.00
Bit stock drills, 4-32 in., Russell Jennings	.10
Counter sink (second grade)	.15
Sloyd knife, No. 6	.25
Foot rule, flat edge	.05
Spoke shave, Stanley No. 54	.25
Firmer chisels, 1-8 in., 1 in., Barton	.60
Gouge, 1 in., Barton	.40
Jack plane, Stanley No. 5	1.75
Block plane, Stanley No. 9 1-2	.75
Hammer, 6 in., Stanley, No. 12	.25
Marking gauge, Stanley No. 64 1-2	.25
Screw-drivers, 4 in., Champion	.17
Combination Oil, India No. .029	.50
Bench hook, Van Deusen	.25
Winding stocks, Van Deusen	.15
Bench stop, Van Deusen	.20
Brush, 7 in. back	.25
Dowel plate, Van Deusen	.10
Pencil compass, Eagle	.10
Nail set	.10
Total	$8.92

This is a supply for a single pupil, but may be used by a number in a rural school; and probably this is the minimum.

Problems. The " problem " is a technical term used in the handicrafts to indicate the things on which the pupils work. Thus a giant stride or a swing is a problem when it is the article on which a pupil or a class works.

It is important that the problems in carpentry have two characteristics. *First*, they must be interesting; and *second*, they must not be too difficult. The more practical they can be, the better; and, in general, if they can be used by everybody, they will be preferable to those made for the pupil alone.

Pupils may make (1) play apparatus: horizontal bars, swings, coasting sleds, and teeter boards for the little ones. This is a source of great interest to them, and the number of things made will be limited only by the number of boys and the time to be spent upon the work by each. (2) Toys, such as box-traps, weather vanes, kites, skees, water wheels, and game boards, which are problems of interest. (3) Useful articles for home, such as bread boards, coat hangers, bracket shelves, wash-stands, umbrella racks, and picture frames. And (4) they may do useful work around the schoolhouse and grounds, easily providing a motive for learning carpentry. Puttying windows, nailing pickets on fences, replacing boards on the side of the schoolhouse, fixing steps, and mending seats, in so far as they are not too difficult for the children, are a few of the things that may be done.

In short, it may be said that the difficulty in selecting problems is to know which not to undertake, since there are thousands clamoring for attention.

As the best possible source of problems, I suggest some such book as the American Boy's Handy Book, by D. C. Beard. It contains projects that are very close to the hearts of boys and girls.

Processes. When a problem has been selected, the teacher's work begins. In brief, his business is to see that the children make things that will do what they are intended to do, and that they use good methods in making them. The teacher will teach any devices that need to be learned and will see that the work is reasonably neat and substantial.

Suppose that the problem is a swing, for which the rope is available. There are four processes necessary — tying the rope, planing and sawing the board, and boring holes through it. Now, it is the business of the teacher to see that the children get some skill in boring, in sawing and planing, and in tying a substantial knot.

Method of Teaching. The teacher should first of all take every problem and see what processes have to be taught; and, if necessary, exercises may be given for these. For instance, in the swing mentioned above, the teacher may let the pupil who is to build the swing practice at boring holes in a piece of board for a while before he begins on the swing board; and in like manner, if it is necessary, allow him to practice at sawing and planing for quite a while. In fact, the teacher may get a good deal of practice out of the pupils willingly, by keeping them at planing or sawing until their work meets with his approval and he allows them to go on to the problem already selected, and for which they know that they are now getting ready. (I say pupil, rather than boy, because girls can learn to handle a hammer and saw just as well as their brothers can.)

One very important point is to be borne in mind. The developing method is to be used. The teacher must not tell the pupils how to do a thing before they have a chance to try to do it for themselves. The method by which he will protect the child from losing this privilege of thinking things out for himself is to require him to make plans before he begins. He may write them on paper, if he likes, or make drawings if he cares to use them, though neither of these is necessary; but he must be able to show the teacher how he expects to do the work. Even then the teacher may interfere too much by arbitrarily making the pupil correct an incorrect thing in the teacher's way. He should use care and allow the pupil to work things out, as much as is practicable, for himself. The developing method is preferable to the mere telling, because it is not arbitrary and keeps alive interest in technique.

SUMMARY. In carpentry, interesting and, as far as possible, socially valuable problems from the pupils' point of view, should be selected. Processes should be taught by the teacher as they are needed, and exercises should be given only when they are taught in connection with the problem to which they are to be applied. The developing method should be used, if full educational value is to be got out of the work.

3. Sewing

The parallel between carpentry and sewing is so close that little need be said in addition upon the latter subject. The processes in sewing are the using of needles and threads, stitching, cutting, pattern making, etc. The problems in which they are used are multitudinous. They should be interesting, however, and not too difficult. Any book on the subject will give numerous problems that are thoroughly practicable in country

schools. The teacher will teach these processes incidentally, as they are needed, and will give practice upon them.

Whether the girls learn or do not learn to cut and fit in the grades in the country, they will learn easily to darn, to mend, to embroider, and to make simple garments; and, in general, they will acquire skill in handling the needle.

Three points are of importance. The *first* is that there should be much home work in the sewing classes. In fact, the work in school should be in large part a stimulus to the sewing work at home, as well as a place in which correct stitches and sewing form is taught. In many country districts great interest has been aroused in sewing, even when it has not been taught as a part of the regular school work. Occasionally some time is taken outside school; and occasionally no time is given to it by the teacher, except in getting up contests.

The *second* point is that the boys and girls should be made acquainted with the great sewing industries which employ hundreds and thousands of men and women, boys and girls. And not only should they be introduced to the process of sewing by machine so that they can understand how a great plant is organized, but they should be taught about the social condition and the wages of these workers. They should be told about sweatshops and the pitiful wages given to the many men and women employed in them. Moreover, they should know of model plants. They should know both the good and the bad. The teacher's obligation has not ceased when she has taught a girl how to make a buttonhole. The girl should know the industry and the condition of life of those who serve it.

The *third* point is that boys should learn the elements of sewing sufficiently to cover balls, make marble or nut bags, sew on buttons, and darn ordinary rents. And a male teacher may teach sewing successfully to girls. Hundreds of men make their livelihood by sewing, and why should not a male teacher learn the elements and teach them to children?

Equipment. In its simplest form a sewing equipment for a particular pupil need not cost fifteen cents. However, the pupil will in that case have to provide the material for sewing. But this again need cost but little if the children would take as their problem the mending of coats and wraps. I have known a good course in sewing in country schools given with mending as the basis. The teacher provided buttons, thread, and needles; and the boys and girls did the sewing. When the class, an eighth grade, had finished with its own clothes, it mended the coats and wraps of the younger boys and girls.

Millinery and Dressmaking. It is not only fit and proper, but eminently wise and practical to have the sewing classes discuss and examine styles and style sheets. Women's magazines that devote themselves entirely to styles, or have much upon styles in them, should be brought to school, or bought by the school and studied by the pupils. Good taste in dressing is the desire of every normal girl. Tasty dressing is a most satisfying faculty, both to the dresser and to her friends. Why, then, should it not be discussed in school under a competent teacher who can by her advice keep the girls from buying or making clothes that are in poor taste, either because of color or of style? If a course in dressmaking did little more than teach women to use fashion

plates for suggestions, it would have done enough to justify it. There is no reason why all girls should have to depend on milliners for their hats. The average girl has as good taste as the average milliner, and all she needs, in order to make her own hats, is to know a few of the tricks in hat making. She will then be able to have four hats, where now, because of expense, she can have only one.

The teacher must be careful to give the girls, not some trifling sewing exercise, but tasks upon which they are actually thinking outside of school. To practice overcasting, buttonhole making, and all the other stitches in class and have no mention of how to make dresses, hats, and so forth, is a waste of interest, if not a distinct waste of time. Appeal to the interests which are already alive in the pupil's mind and he will follow you to the ends of the earth.

Summary. In sewing we have problems and processes, as in carpentry. The problems should be interesting, and the processes should be taught as they are needed. But instruction should not stop with the mere technique of sewing; it should seek to give the pupils an understanding of the great sewing industries and the conditions of life of those who are engaged in them.

4. Cooking

Cooking has not been worked out very well for rural schools, as a school subject. The chief cause of this is the lack of necessary facilities such as ovens, material, and so forth.

Domestic Science Clubs. However, two lines of work have been attempted with very good results. In some states, working through the rural schools, domestic science departments in agricultural colleges have organized domestic science clubs in which sometimes

several thousand girls enroll. To assist the members in their work, bulletins are issued from time to time giving recipes and other directions concerning problems in cooking which are to be carried on in the home. For instance, the Iowa State Agricultural College issues a bulletin on the cooking of vegetables, which takes up the composition of several vegetables, such as carrots, beans, and cabbage, and gives many recipes for making each into appetizing dishes. Other bulletins take up the composition of fruits and give various methods of making them into jellies or canning them. In these publications, moreover, are such matters as correct form in setting the table.

The rural school-teacher, whether male or female, can assist in this work by coöperating with the state schools in helping to carry out any plans that may be made. Any live teacher can enroll a large percentage of the older girls. In Iowa, for instance, 3000 girls are enrolled. This, compared with the enrollment in most states, is a large number; but it is less than one girl to every two schools. This makes it evident that the school-teachers of the state are not coöperating as generally as they should.

The School Luncheon. Another form that the course in cooking may take is the organization of the work around the school luncheon. As Miss Richards says, "The luncheon taken to school may be good and sufficient food, but, if crushed — jam mingled with cookies, butter squeezed over the doughnuts — if eaten with chalky fingers on the schoolhouse doorsteps in company with flies, the additional charm of appetite is frequently wanting." In the winter time, particularly, the luncheon is cold and soggy, and it is only the healthy

outdoor life of the boys and girls that keeps them from having acute indigestion. When to this state of things is added poor home cooking and the good-natured acquiescence of some mothers in giving their children much cold pie and cake, in addition to the ever-present fried pork; and when the food is bolted down in as short a time as possible so that the children may get out to play, the danger line is close.

To remedy this, some schools have begun to prepare hot luncheons. In some places this is limited to hot soup; in others meats and vegetables are added.

Miss Mary Bull, of the University of Minnesota, writing in the "Journal of Home Economics" in December, 1912, describes how teachers in Minnesota have handled the luncheon. Excerpts from the report are given here. Full details can be secured by writing to Miss Bull, University of Minnesota, Minneapolis, Minnesota. A few facts are clearly brought out in the article mentioned. A bulletin was issued giving a number of soups, gruels, chowders, etc., which could be prepared, and stating what utensils were needed. Suggestive lessons on the food values of the different ingredients were included.

Perhaps a good method of giving an idea of how the work is carried on in this state [Minnesota], is to give a few representative answers received from teachers to a list of questions which were sent out in the spring of 1912.

1. Has preparing and serving a hot soup with the noon lunch been tried?
   a. Yes. . . .
   c. We have tried serving soups, sometimes cocoa, with our noon lunch.
2. If so, with what success? . . .
   c. I believe it is a great success. I never saw the children so enthusiastic about anything as they are about

our oil-stove experiment. They think soup and cocoa taste better at school than anywhere else. My only regret is that we did not get the stove sooner.

3. How much time is necessarily spent in the preparation of the hot dish?
   a. But very little of school time. . . .
   c. Use recess period for preparing vegetables, etc. . . .
   d. Time taken in the morning, recess, and at noon to finish preparation.
   e. From ten to twenty minutes daily. . . .
   g. Two or three minutes.
4. Was the work done by teacher or student? . . .
   b. We all help. I see to the cooking and the girls serve and wash dishes at the noon hour.
   c. I let the girls take turns with preparing it. They enjoy it and become interested in the work. Having to do the work at school may induce them to try preparing the same dishes at home. . . .
6. How secure the material to be used in the hot dish?
   a. Pupils volunteer to bring this material.
   b. I started by buying materials myself, but the school board furnishes the food materials now.
   c. The soup bone is brought by the pupils in the morning as are also the vegetables. The soup bone is put on to boil slowly as soon as it is brought. The vegetables are prepared before 9 o'clock, if time permits, or at the first recess. . . .
   d. Two cents a week from each child and materials purchased with amount collected.
7. What equipment is used?
   a. Heater, cups, spoons, kettle, ladle, large spoons, dish pans, fireless cooker — (tin cans for material furnished by children). Some children have brought plates, knives, and forks. . . .
   c. A large kettle, large spoon, dish pan, cups and spoons furnished by the pupils. . . .
8. How secured?
   a. Stove is borrowed. The rest was furnished by teacher. Pupils furnish their own cups and spoons.
   b. Had cups and spoons. Fireless cooker was bought with social money; the rest by the teacher.

c. Supplied by district. . . .

g. The oil-stove was paid for with part of the money made by giving a box-social and entertainment shortly after Christmas.

9. If the heater is used in preparing the hot dish, please explain the process.

a. The lid is taken off at the top of stove and kettle set in. . . .

c. We use our heating stove and have a wire to hold the kettle on the stove. . . .

e. We have a kerosene stove, 8-quart kettle and ladle. These articles were obtained through the efforts of the schoolgirls. At a recent "Farmers' Club," the girls volunteered to furnish a lunch consisting of coffee, sandwiches, pickles, and cakes. The sandwiches and cakes were made from the recipes contributed by Mary L. Bull. A collection of $3.50 was the result. For this, we obtained the above-named supplies. Soup bowls and spoons are brought from the different homes. . . .

10. Was a lesson regarding food given in connection with the dish prepared, as suggested in Extension Bulletin No. 19? If not, why not?

a. To some extent.

b. Yes, in a very simple form. . . .

11. What is the attitude of the students toward such work?

a. They are willing to do the extra work and enjoy the soup.

b. They are very enthusiastic. . . .

e. The pupils enjoy the work. We have fixed up a part of our hall as a "Kitchenette," and the boys transformed a grocery box into a "cupboard" for our dishes and supplies. This is fastened to the wall above our stove. The girls enjoy washing the dishes during the noon hour.

12. What is the attitude of the parents?

a. I have not heard of any one who has anything against it. Many have spoken favorably of it. . . .

13. What are some of the benefits derived from carrying out the Hot Lunch plan?

a. It is an aid in discipline, a step toward domestic

science, a great comfort, especially on cold days, besides the nourishment furnished in the foods.

b. More appetizing than only cold food. Brings the scholars together as a family. Meal is more quiet and orderly. . . .

d. The pupils do better work after having hot lunches and it is educational in the line of cooking, manner of eating, cleanliness, etc.

e. I think this work a great benefit both to the children and teacher. It helps to make the school more home-like. . . .

g. It gives the children something warm at the noon hour. They enjoy eating their lunch more than ever before. It helps them to study better during the afternoon session. It is such a success that I would not do without it again if I had to furnish all the materials myself.

h. Noon lunch is eaten quietly and more slowly. . . .

It is interesting to note how teachers with ingenuity utilized the heater, the kerosene stove, and the fireless cooker, as each was available; how some had more dishes and others had less; and how the boys helped in the household arrangements.

These two methods of handling cooking — through clubs and school luncheons — do not solve the question of cooking in the school. They are only the thin end of the entering wedge, but they are both well worth the careful attention of bright teachers.

5. Primary Handwork

Teachers are often driven to distraction in their efforts to find work enough to keep children busy in the primary grades. To do this some one made use of the fact that if you keep children's hands busy, you can keep their minds busy. So handwork becomes *Busy*

Work, a term which exactly expresses the idea of the users. It keeps the children busy.

But from this unintelligent use of handwork a transition has occurred. For it was shown to the busy work advocates that it is possible to keep children busy and at the same time give the busy work some educational value. It is possible to have some other and higher ideal in giving exercises than to keep the children at work.

This is the argument given to the mechanical teacher who " keeps school." But the real reasons for handwork we have already discussed above. We found that it helps pupils to make interesting things, to develop their instinct for doing things, and that, when properly taught, it gives them an insight into great industries. These are the only good reasons for teaching primary handwork. Keeping children busy is merely one good result that comes from good teaching, but is not an end in itself.

Primitive Industries. A few pages above we discussed a theory called the recapitulation theory, which states that any person from the time he is a little child until he grows to maturity passes through the same stages that the race passed through from its very beginning till the present time. We said then that this parallel was not very close, but that the theory suggested some good ideas for teachers.

One of the places in which it works best is in the study of industries in the primary grades. For it was found when tried that the simple devices that primitive people used in doing things are much better understood and appreciated by the children than are modern methods. Numerous examples will come easily to mind. The most primitive method of cutting grain was probably

to pull it up by the roots; the most modern is to use the binder. The most primitive method of grinding grain was to use two flat stones; the most modern is the rolling mill. The most primitive method of water transportation was a log; the most modern is an "ocean greyhound." All three of these illustrations bear out our statement. For there is no doubt that a child gets more fun out of pulling grain than he would out of running a binder, out of grinding grain with stones than out of managing a rolling mill, out of floating a log than out of taking care of the Lusitania. As a matter of fact, he cannot handle these particular modern forms of ancient industries; they are too complex for him to understand. In those early days the abilities of our forefathers were more nearly on a level with those of modern children than with those of modern adults; and since this is the case, the primitive industries are better understood and enjoyed by children than are the more complicated modern processes.

The people who hold the recapitulation theory say that we should let the children do the things that primitive people did because they are in a stage of development that parallels the primitive stages the race passed through. As soon as they make this assertion, however, much opposition occurs and they cannot prove that the child is really in that stage. But if one avoids that statement and says instead that we teach these primitive forms because they seem to be easily understood and keenly enjoyed by the pupils, we take a position from which we cannot be dislodged.

A large part of the time of primary grade children can be given over to these industries. For direction in doing this there is, so far as I know, no better guide to follow

than K. E. Dopp's series published by Rand, McNally and Company, of Chicago, and entitled "The Tree Dwellers," "The Early Cave Men," "The Later Cave Men," etc. This is the best guide I know, because it is the best attempt yet made to pick out and show the origin of significant activities in such a way that children may understand and practice them.

The best plan to follow is to purchase for the library, at least one of each of the books in the series or more if there are funds for supplementary reading. Then in the first grade "The Tree Dwellers" should be read as a supplementary reader; and as it is read, the practical things to be done should be done by the pupils. If there is only one copy, each child should read it in turn and do what is advised. He will find here many very interesting things; and even adults may discover in the little primers things of which they have never heard, but which, we are reliably informed, are accurately described by the author.

The plan of the texts is to tell a story of primitive life, and to have the children do a number of things that are suggested by the story. So on this basis we find the children asked in the first grade to look for roots and berries good for eating; to describe early methods of carrying babies and of making cradles in the trees; to model trails that cattle make on their way to water; to visit caves; to give water to others when no receptacle is handy; to tell vegetables by their smell; to dig roots with fingers and with sharp sticks; to model a bird's nest; to study about wild honey; to name animals that can climb trees; to make a stone knife; to make a shelter from the wind and rain; to gather tough grasses and make a basket; to find out what animals live in hollow

trees; to make a torch; to gather trophies; and to dress dolls like the people in the stories. It is not possible in thus stating the problems in each case detached from the context of the preceding story to give an adequate idea of the wonderful appeal this work has for first-grade children.

The reader will notice that all these things can be done and are to be done without tools; hammers, saws, knives are all forbidden. These things *were* done centuries ago by people who had none of these tools, and the children can do them now with only those means that nature affords.

In " Later Cave Men," which is intended for about the third grade, similar interesting things are done by the children. Let me quote a few directions: —

If there are cliffs or shelving rocks near by, go and see them. Find places where you think caves may form. Find out why it is that the rocks shelve. Model the cliffs which you find. Draw or paint a pattern which you think the cave men might have tattooed upon their arms. Where do we put the pictures which we make? Why did the cave men put them on their bodies? Find a good branch for a shaft, make it into a shaft, find a stone which you can use for a scraper. Make a collection of the different kinds of wood which you know. Which are hard? Which are soft? Which will do for shafts?

The pupils are shown how to make stone knives, how to put handles on them, and how to collect stones good for flaking. They are instructed in primitive methods of signaling. They boil water by the first method of boiling — dropping hot stones into skins full of water. They make message sticks, collect the calls of birds, and describe methods of dressing skins, using such songs as were sung by the cave men in stamping upon them.

These are only a few of the many things that the

children do. That they are fascinated goes without saying. But mere interest amounts to little. It is of more importance that the work have some intelligent idea behind it. This it undoubtedly has; for here we find in their early beginnings the great processes which we now use in the more advanced form. Modern industries could not go back to these ancient forms because they are too slow and too laborious, but they suit children exactly.

That we do have the essence of modern industries in these simple beginnings is shown by a number of those just mentioned; for example, collecting roots and berries and digging roots with sticks are connected with food production; the trails represent transportation; and caves, the furnishing of shelter. Gathering tough grasses to make baskets is the early form of the modern weaving process. Tattooing and trophy wearing are simple forms of what we find later as personal adornment. The making of the shafts and knives out of wood and stone was the prototype of the manufacture of tools and implements. These are a few illustrations which show that we have in these primitive forms the simple beginnings of which we have spoken.

Summary. Primitive forms of tools and primitive attempts at solving the problem of food, clothing, and shelter are excellent materials for primitive handwork because they are fascinating to children and show in miniature the essential meaning of our modern industries. Miss Dopp's books present the best classification of material for use in the grades.

Modern Industries. There are other teachers who make modern industries the nucleus of this work. This method is worked out in representative material by beginning with the home. Doll houses are made (some-

times out of a cracker box) in which, by simple devices found and explained in texts, the building of a house is taken up from beginning to end. The windows are put in in miniature. Furniture is made, and walls are papered with paper designed by the children. Rugs are woven for the floors, and stairways are put in. Then the downtown businesses are represented — the butcher shop with its contents, the grocery and the drygoods store, the post office, and the blacksmith shop. Agriculture is studied on the sand table, where the area is marked off into plots with fences. Barns, houses, gates, windmills, and clay animals are in the field; real grain is sown and sprouts.

This is supplemented by visits to all these places, or to such as there is time for, for the purpose of determining what should be illustrated. In preparation for these excursions the class does a considerable amount of detailed study in the school. But it is not necessary to make these visits if the children are familiar with what they are to represent.

Illustrative Work. In both of the foregoing types of work — primitive and modern industrial — there is an excellent chance to correlate reading and language. Miss Dopp does this with her stories, which run on and illuminate what is being done. And in her exercises called " Things to Do " and " Things to Think About," there is given frequent opportunity for oral and written language work and, for that matter, for drawing as well. In the other work just described there is the same opportunity for written and oral language; and except for the fact that we do not have industrial readers, there could just as well be correlation with reading. However, there is a great mass of this work which is secondary to other

subjects and may be used as illustration and as drill work. This idea is worked out in several books, but it is particularly well classified in "Educative Seat Work" by Fannie W. Dunn, published by the State Normal School at Farmville, Virginia. There are two important correlations, besides a good deal of miscellaneous work. The first group to be illustrated is reading, word study, literature and language. Scissors are used on old magazines to cut out familiar words; pictures and their titles are separated by the teacher and put together by the pupils. Illustrations of stories are drawn. Sandtable construction represents scenes and events. The second group illustrated is number. Pegs, splints, numbers on cards, paper domino games, cardboard money games, measures, clock faces, are a few of the kinds of material used in this connection.

There are more familiar forms of handicraft than those described above, of great use in drill work. However, the teacher should not carry the work to excess, but should vary it with the many other forms of constructive work that are provided in such profusion. Even the purely mechanical teacher who is interested merely in keeping his children busy can find ample work of various sorts, if he cares to examine a few books such as those mentioned above, and can at least keep his pupils happy while, at the same time, by judicious care, he educates them along fundamental lines.

Clay Modeling. Little children love to make mud pies, and in that we have a manifestation of a deep love for plastic modeling. This yielding substance, which holds its shape better than sand, possesses great interest for children all through the grades. The teacher has merely to give this interest its proper direction.

This can be done best by having the children use it for illustrative work. They may draw clay animals or men. They may make bricks, and with the bricks, by uniting their labors, build a house. They may model a flower or a vase. Mere playing with the clay is of some use; but they ought to be making things with a purpose, so that they will be getting both pleasure and training. This will give a motive for study. For in addition to enjoying the work, they will be illustrating something of value.

Then, what the teacher needs to do in addition is to criticize and to have the class criticize for naturalness; and finally, he can make suggestions for improvement and change of methods of work. No great beauty should be sought. Naturalness and as much accuracy and neatness as the maturity of the pupil justifies are the two standards by which to judge of the excellence of his work. (Directions for this work may be found in any reference book on manual arts.)

Weaving. All forms of weaving — baskets, mats, hammocks, etc. — are simple in principle; they can easily be overdone. There is, probably, less thought and more drill in weaving after the weave is mastered than in any other form of school exercise. The same thing is done over and over and over again, time without end. Once in a while a new pattern takes a few minutes' thought in order to be put into workable form; but that is followed by hours of working in and out, in and out.

If one were anxious merely to keep the children busy, it would be a fine thing to keep them weaving. But if a desire is present to give them at the same time as much education as possible, weaving will be watched with care to see that it is not overdone.

SUMMARY. There are five main types of primary handwork — primitive occupations, modern occupations, illustrative material, clay modeling, and weaving. These are all of use; and of them all, probably primitive tools and occupations provide the most valuable starting-point.

6. Advanced Handicrafts

Alternation. Sewing is an upper-grade subject, because the needle is too fine an instrument for primary children. Woodwork and cooking are likewise advanced subjects, depending rather upon age than grade. The hammer and saw can be used to advantage in the seventh and eighth grades, and I hazard the opinion that in the seventh grade is the place to begin sewing. However, that is merely an opinion. The subjects are so new that there is no accurate information at hand stating about where the work in either carpentry or sewing should commence. If I were teaching in a country school, I should introduce it in the seventh and eighth grades, and should alternate the seventh and eighth grades.

Correlation. No matter whether there are special classes in the handicrafts in the upper grades or not, illustrative work should be carried on. This is one of its greatest uses in the upper grades.

The method of using it is this: The teacher runs through the history, let us say, and decides at what points the pupils may illustrate the work. Illustration may be done by drawing, as in illustrating a scene: by the sand table, in showing a surface; by pasted pictures in folders, and by models made of wood, putty, or clay.

If the teacher finds one such place in each history lesson, he may have all the pupils do the illustrating. Or he may find three, let us say; and in this case he may

apportion the illustrating, letting one third of the class do one illustration, the second third do one, and the final third the last one. In this way, without taking much time, many points in the lessons can be made clearer.

In this upper-grade work there is a great tendency to overdo the work; that is, to spend too much time on it, fooling with little puttering details. So care has to be taken. The teacher must always remember that this work is merely for illustration and that sketches, rather than finished products, are all that are either necessary or advisable.

A few examples of what is meant by picking out the points of possible illustration will probably make the point clearer. The following are two paragraphs which may be made the subject of some illustrative work: —

Never did a pilgrim approach Niagara with deeper enthusiasm than mine. I had lingered away from it and wandered to other scenes, because my treasury of anticipated enjoyments, comprising all the wonders of the world, had nothing else so magnificent, and I was loath to exchange the pleasures of hope for those of memory so soon. At length the day came. The stage-coach, with a Frenchman and myself on the back seat, had already left Lewiston, and in less than an hour would set us down in Manchester. I began to listen for the roar of the cataract, and trembled with a sensation like dread, as the moment drew nigh, when its voice of ages must roll, for the first time, on my ear. The French gentleman stretched himself from the window, and expressed loud admiration, while by a sudden impulse, I threw myself back and closed my eyes. When the scene shut in, I was glad to think that for me the whole burst of Niagara was yet in futurity. We rolled on and entered the village of Manchester, bordering on the falls. . . .

It was an afternoon of glorious sunshine, without a cloud, save those of the cataracts. I gained an insulated rock and beheld a broad sheet of brilliant unbroken foam, not shooting

in a curved line from the top of the precipice, but falling headlong down from height to depth. A narrow stream diverged from the main branch and hurried over the crag by a channel of its own, leaving a little pine-clad island and a streak of precipice between itself and the larger sheet. Below arose the mist, on which was painted a dazzling sun bow with two concentric shadows, — one almost as perfect as the original brightness; and the other drawn faintly around the broken edge of the cloud.

Here a teacher might decide that the sentence beginning "the stage-coach" could be illustrated by a drawing. A picture of the falls, as the writer saw it, could be drawn. A miniature falls might also be made out of clay, or represented on the sand table. Pictures of the falls from different angles might be collected.

Here are four possible points of illustration, all found in two paragraphs, and all of them would lend interest and clearness to the understanding of the experience. Sometimes several lessons might be gone over without any attempt at illustration, because nothing within the capabilities of the class was observable. But on the average, there is in every lesson in most subjects a possibility of the use of some form of illustrative handwork.

Summary. Besides special classes in the handicrafts, there is ample opportunity for illustrative use of various branches in making other subjects clearer to understand.

7. Class Mechanics

In such a broad subject as the handicrafts and one so new and presenting little logical organization, it is almost impossible to give intimate directions for class management in the subject.

This can probably be best done by referring the reader to a few books in each subject which will provide

details about the subject-matter and methods of handling it in the class. These books are not necessarily the best. But from inquiry, in every case, of a number of authorities in the subjects covered, these seem to be reliable texts: —

In carpentry, *Handwork in Wood*, by William Noyes; published by Manual Arts Press, Peoria, Illinois.
In sewing, *A Sewing Course*, by Mary S. Woolman; published by Fred. A. Fernald, Buffalo.
In primitive industries, *The Tree Dwellers*, *The Early Cave Men*, *The Later Cave Men*, and *The Tent Dwellers*, by K. E. Dopp; published by Rand, McNally & Co., Chicago.
In illustrative seat work for the lower grades, *Educative Seat Work*, by Fannie W. Dunn; published by State Normal School, Farmville, Virginia.
In clay modeling, *Clay Work*, by K. M. Lester; published by Manual Arts Press, Peoria, Illinois.
In basketry, *The Basket Maker*, by L. W. Turner; published by the Davis Press, Worcester, Massachusetts.

REFERENCES FOR CLASS READING

Black. *Primary Methods*, pp. 37–79. (Illustrative handwork.)
Crawshaw and Selvidge. *The Teaching of Manual Arts*, pp. 41–63. (Suggestions for many problems.)
Dopp. *The Place of Industries in Education*, pp. 173–242. (Showing what can be done without equipment.)
Row. *The Educational Meaning of Manual Arts and Industries*, pp. 216–25 (suggested course of study); 159–74 (economic, industrial, and social values).

CLASS QUESTIONS

1. Recall your experiences as a pupil in the primary grades. How were you kept busy?
2. Watch a five-year-old pupil for an hour when he is among "things," and see what he tries to make.
3. When I was a boy, my teacher would not let me draw pictures in school. Did she do right?
4. Give ten instances of cases in which boys have made useful and rather complicated things out of wood.
5. Is it your experience that girls should know how to handle a saw, hammer, and plane? Why?

6. What are some of the modern industries you know sufficiently well to make the children understand them? Where will you look for information about other industries?

7. What are some simple things that boys and girls can do in school, which are the essential processes in these industries?

8. What are the different processes a boy needs to know in building a chicken coop with a window? Draw a picture to show the kind of chicken coop.

9. What are the different processes a girl needs to be familiar with in making a hat?

10. What would you do if, after you had introduced handicrafts into the primary grades, a parent should tell you that he sent his boy to school "to learn and not to do all this foolishness"?

11. Select four lessons from reading-books and describe the kinds of illustrating you would have the children do, indicating the particular passages to be illustrated.

CHAPTER IX

GEOGRAPHY

1. Subject-Matter

Function. The most commonly stated definition of geography is that it is the study of the earth as the home of man. This definition has two elements. On the one hand it is concerned with a study of the earth, including continents and oceans, topography and climate. But among all the facts that might be taught and learned about the earth, geography is concerned only with those, says the definition, which are related to the earth as the home of man. By "the home of man," we mean those things intimately connected with man's general well-being — what he eats, what he wears, how he keeps out the cold, the heat, the rain, and the snow. These are the things that geography studies — the nature of the earth's surface and climate concerned with the securing of food, clothing, and shelter.

Place Geography. This may be made more exact by stating the function of geography as that of getting control of values by relating them to place.

This very simple definition means that geography places things for us. When the boy asks, " Where is the jam? " he is invoking the aid of geography, because he is trying to get control of something of value by connecting it with a place. When the poet wrote

> My bonnie lies over the ocean,

he also used geography to get what control he could of

his value because it did help him a little to know where his "bonnie" was buried. When Johnnie goes out hunting the colts, he is delighted if some one says to him, "Mr. Jones has shut the colts in his stable for you." Here a value (getting the colts) is greatly helped by relating it to place (Mr. Jones's stable). When the policeman is asked where the ball park is, and replies that it can be found upon Thirty-first Street, he is using geography. When the son comes home and asks his father where his mother is, he is also using geography in trying to locate her.

Rational Geography. Within a comparatively recent period geographies not only have been telling where things are, but have in addition been attempting to explain why they are there and why they are what they are, in terms of the places where they are found. That is, attempts are made to explain them in terms of climate and physiography. This is called *rational* geography, or "*why* geography," while *place* geography is called "*where* geography."

Place geography is satisfied with saying "Rice grows in Louisiana." But rational geography seeks to explain why, in terms of climate and physiography, rice grows there. It finds, for instance, that there must be a long warm season without frosts, and that the surface must be low so that water may flood the fields at certain intervals. Place geography informs us that tea grows in China, but rational geography carries the investigation further and explains, in terms of climate and surface conditions, why tea grows in China.

Place geography gives us good control of values, but rational geography gives us better control. Here is a single illustration which will demonstrate this fact.

Place geography states that tea grows in China. This is of use to Americans because it tells them where they may hope to find tea. But if the agricultural department is told by geography the conditions of climate and surface that enable tea to grow in China, they may search for the same conditions in America, and if they find them, tea will, of course, be grown here and it will no longer be necessary for Americans to send to China for tea.

SUMMARY. The function of place geography is to tell us where we can find things in which we are interested, and the function of rational geography is to explain in terms of climate and physiography why we find them in those places.

Structure. The structure of geography may be discovered by an analysis of values and of place. The values which we have used in illustration have been simple and unclassified; they were such things as mother, colts, tea, etc. But we may classify values along great lines of interest. There are, for instance, the industries. These are in part controlled by the facts of geography. For instance, climate has much to do with the industry of agriculture; and physiography has a great influence on manufacturing, because much of its success depends upon distances from markets, from productive bases, and so forth. Then there are political values which may be controlled by climate and physiography. Particularly strong is the influence of physiography upon politics, for national boundaries are very frequently determined by mountain ranges, rivers, and oceans. Then we have biological values. For instance, a very interesting field of investigation is that which devotes itself to discovering to what extent the nature of plants and animals is dependent upon climate and physiography. To these

may be added any number of values which geography helps to control and understand.

On the other hand, geography divides the place element into two main divisions — climate and physiography. These two great sub-divisions are again subdivided. Climate is composed of three ingredients: temperature, moisture, and winds. Physiography is variously divided into oceans, rock formations, erosion, soils, and other factors which may be found in physical geography textbooks.

We get, then, our organization of geography, *first*, by classifying values or important things; and *secondly*, by showing what effect the different elements have upon these.

Physical geography is simply a study of the place element; that is, of climate and physiography. To get geography, we have to relate physical geography to things of value, such as plants, animals, industries, and so forth, to show where they are and why they are there. The only great reason for the study of the surface of the earth — capes, bays, rivers, mountains, and continents — is to get pupils ready to use them in understanding the things that they think are from time to time worth while.

SUMMARY. Geography is organized, on the one side by classifying values and, on the other, by analyzing physical geography into its elements. These are brought together by showing how the values are related to climate and physiography.

Course of Study. From all the foregoing facts two things are evident.

First, much of the material found in school geographies is not geography at all. Descriptions of government, of customs, of races, and of industries are not

strictly geography, because they are not studied in relation to climate and physiography.

However, when this material is interesting and valuable, it might as well be taught in geography classes as elsewhere. The customs of the Chinese are of importance to us; we have no subject called anthropology in school wherein these facts may be studied; so geography is as good a heading to teach them under as any other. As Hall says, "Through it the American who leaves school at the sixth grade gets his first and almost only peep at the wide world in which he lives. It is his elementalized university course, in which all is reduced to the lowest and smallest terms. It is introductory to almost everything else, or can be made so."

The *second* fact is that to make up a course of study one must select, since there is by far too much material to teach. To select, one has first to decide upon the most important things to teach.

In planning a course of study one has to arrange this material according to the needs and interests of the pupils from day to day and from grade to grade. When one has selected the most important material, and has arranged it according to the stage of development of the children, he has prepared his course of study.

Textbook makers and others have already done this. How well it has been done is not so certain, since we have not a unanimous opinion as to the most important topics to teach, nor anything like a unanimous opinion about the order and arrangement of the subject-matter according to the nature of the pupil. For instance, in one geography Africa is given 25 pages and South America 26. Yet the commerce with and the general news from South America is twice that from Africa.

Canada in the same text has 13 pages devoted to it, although the commerce with Canada is more than that with South America or Africa.

Questions of space and a thousand other criticisms arise in connection with geography texts and material. But this fact cannot be gainsaid, that the American geography, with whatever faults it has, is the finest made and the best illustrated geography textbook in the world. It is sufficiently good for the teacher to follow, whichever text he may use, with as much closeness as he follows any textbook, remembering that he is to deviate here and there whenever, in his judgment, the needs of his pupils seem to call for a departure from the book.

It is, however, of considerable interest to compare the various courses of study that different people suggest, to see at what points they diverge. Of these, a list is given at the end of this chapter.

SUMMARY. The course of study is made by picking out the important facts in geography, and arranging them according to grades to suit the interests and needs of the children. In this, there is great difference of opinion; but the teacher without a large amount of geographical training should follow fairly closely whatever text may have been adopted for his school.

Standard. A student knows his geography well when he knows the location of all the important places and products and can tell why these are where they are; and when he knows all the important geographical facts, as every student should by the time he finishes the geography course.

When I was a boy we learned the names of every river, cape, or island that could be found on the map. Quite distinctly I remember how the teacher had us pick out

the rivers, one by one, while she wrote them on the board. These we memorized. The rivers of Europe flowing north and west were Petchora, Dwina, Vistula, Oder, Elbe, Wieser, Rhine, Seine, Loire, Garonne, Douro, Tagus, Guadiana, and Guadalquiver. Of these fourteen rivers, I have never since, so far as I can remember in almost thirty years of rather extensive reading, met with more than eight. Of these eight, probably two are of prime importance — the Rhine and the Seine. The other twelve were probably memorized at a loss.

Geography textbooks show many things now that are not of prime importance. There is a great deal of filler in all texts, and from this the teacher must select the important as best he can. Where he is in doubt, however, about omitting, he had better follow the text.

Home Geography. Home geography is the only sort of geography people have who do not read books or hear travelers' tales. And so far as making a living is concerned, it is not absolutely essential that any one know any geography outside that which he sees and uses around home. If, however, he reads the papers or travels, it is almost necessary for him to have his geography very considerably enlarged.

One does not need a book or a school to teach him his home geography, because he can pick it up for himself as he needs it. For this reason, when home geography is taught in school, it is intended principally to get a pupil ready for advanced geography — world geography. This it does by teaching children the meanings of geographical terms and definitions, through illustrations taken from their own home experience; and then, when these terms are thus made clear, they can be used in world geography. For instance, a pupil will have to use

terms like *river basin*, *delta*, *cape*, or *island*. But they will mean little unless they are explained by illustrations in the topography surrounding the school. If the pupil sees a river basin in connection with the local creek, an island in the same creek, or a delta at its mouth, he can then understand these terms in world geography, but he cannot until then.

McMurry says there are seven principal topics which should be studied in home geography. These are: (1) food products and the occupations related to them; (2) building materials and the related trades; (3) clothing, the materials used and the processes of its manufacture; (4) local commerce, including roads, bridges, and railroads; (5) local surface features, including streams, hills, woods, etc.; (6) town and city government, including the court house, city hall, city council, etc.; (7) climate and seasons, including the sun, wind, storms, and heat.

This provides practically all the terms that will be used in later world geography, and any list that accomplishes this is sufficiently complete. For with a year or more spent upon these terms and ideas in local surroundings, they become second nature to the children who study them.

It is not very difficult to organize this work. One can begin almost anywhere and take up material in almost any order. The order, however, depends largely upon what text is used and what seems to be the " next thing " to take up. The children having not yet gone far into geography, there is no necessity for a logical arrangement; a " psychological " organization is better. When the terms and ideas of geography have been studied in this irregular order, one thing alone is needful. They

must stick reasonably well in the minds of the pupils, in order to form a working vocabulary.

SUMMARY. The function of home geography in the schools is to give the pupils a working vocabulary for world geography.

2. Motive for studying Geography

The specific appeal in geography may come from two sources — from an immediate interest in geography or from the selection of highly interesting values. The former requires no discussion, because if it is there, we have nothing further to do about it. But if not, then the method of getting interest in geography is to connect it with values which have to be placed and explained.

These values are of three or four sorts. First of all, there is the appeal to the romantic element in pupils, which no other subject can satisfy so well. The arctic circle, from which come back tales of heroism and adventure, upon maps on which the little stars mark the northward advance of discoverers, is filled with a romance that feeds fat the idealism of childhood. At the time when this is studied, columns of supplementary and library reading should be fed them as fast as they can masticate it. The bizarre effects of foreign dress and costumes, the beauty of mountain scenery, the breath-catching jeopardy of glacial crevasses, the luxuriance of the tropics and the date palms of the desert awaken such longings and psychic reverberations in the growing boy as will perhaps never be awakened by any other means or at any other time. It is this romantic love for adventure that makes travel interesting to so many people and sends hardy souls into unexplored dangers. Geographical readers, simple books of travel and discovery are indispensable.

A good course of geography in the fifth grade can be taught through books of travel if, as the pupils read them, they study the map with the guidance and patience of the teacher to aid and steady them. The course will lack system, to be sure; but geography, at best, cannot be very systematic, and there is less necessity for system in geography in the fifth grade than in many other places.

This interest takes on other attractive forms, such as that of taking imaginary trips during imaginary vacations. Classes have worked up a very considerable enthusiasm for a number of things, such as time tables, railway fares, cities, kinds of cattle, climate, etc., by taking an imaginary trip in the winter to Texas to buy cattle. So, also, a trip of like reality can with profit be made to Colorado or British Columbia, for which many dozens of pictures showing the grandeur and sublimity of the Rockies have been collected by a class.

In like manner, interest may be stimulated by having a class correspond with a class of equal age in a far distant locality amid different scenery. Here, again, romance taps reservoirs of interest, as is shown by the flood of pictures and descriptions that pass back and forth between such groups.

In addition to the appeal to romance, there is a practical appeal. That is, pupils need the geography in other material activities which they are carrying on. For instance, in stamp collecting, a boy is led far afield as soon as he begins to gather the stamps of any foreign country. Nor can the collector hope to carry on his work intelligently without getting a fairly good hold upon the location of countries.

As in history, school work can be carried on so that

children have to study geography in order to understand what they read. One may study the Civil War in many ways; but if the student tries to see why the campaigns were planned and waged as they were, he must fall back upon his geography. He will find that facts of geography, and not morals, made the Southern States slaveholders, and the Northern States abolitionists; that geographical conditions, not nerves, gave birth to the Populists. Geography explains the particular routes that westward immigration took. Climate makes the South different from the North to this day, in temperament, habits, and industries; and geography explains how. So not only may the teacher so teach history that geography may be learned; but unless history is taught through geography, it will not be learned as it ought to be.

Besides the appeal to romance and to the practical problems in the lives of the pupils, an appeal can always be made to curiosity about common and important industries and products. For instance, the history of commercial products is a matter of interest to children. One teacher saw a load of hides hauled across the city, and made that rather common sight the beginning of a series of geography lessons.

She inaugurated the series by the question, "Where do those hides come from?" The answer led to the station, to the stock yards at Kansas City, and from there to Wyoming. Before they were through, they knew where the grazing lands were, why they were grazing lands, how the cattle were raised and cared for by ranchers and cowboys, how rounded up and shipped, and how slaughtered and finally disposed of. This load of hides was carried on to the shoe shop and was not left

until the resulting shoes were on the feet of some boy or girl.

Similar series may be introduced by other stimulating questions, such as " How do we get raisins? " or, " Where is rice produced? " or " Where does silk come from? " Such questions are easy to select and not infrequently easy to develop into a well-rounded geographical topic. In fact, many wholesale houses distribute literature and studies of the process of manufacture, for the use of teachers and children in school.

Summary. In getting an interest in geography, appeal may be made to romance and adventure, to interest in practical activities in which the children are engaged, and to curiosity as to the origin and history of common and important articles of commerce. Geography is capable of being made a very interesting subject, if a live teacher has charge of the class.

Correlation. Geography is related to almost every subject in the world, for the all-sufficient reason that almost everything in the world is more or less dependent upon climate or the physical condition of the earth. History we have seen to be dependent upon geography, which is called " the eye of history." Botany, likewise, is dependent upon climate and soil, since the form of a plant is determined very largely by its environment. Modes of dressing, with all the industries dependent upon the need for clothing, vary with the climate. And architecture, from the igloo of the eskimo to the palm hut of the South Sea Islander, is dependent almost entirely upon the physical conditions of the locality.

So geography is easily in place in almost every subject of the course of study, and the connections should be made wherever and whenever possible. Particularly

should it be used in connection with language, literature, drawing, history, nature study, and agriculture.

But in another sense many subjects are correlated with geography as an aid to it. Arithmetic, for instance, is constantly needed in geography. So, also, are art and pictures. Reading, of course, is needed at every turn. The manual arts, particularly painting, sandtable work, and other forms of representation, help to illuminate geography and make it intelligible. In short, to a very considerable extent all subjects are needed to make clear the relation between things we value and the places where we can find them.

3. Methods of studying Geography

Drill. The first thing necessary for the wise use of memorizing in geography is the determination of important items. Once the teacher has decided upon these, he should, in my opinion, insist upon their memorization. I am sufficiently old fashioned to believe that the important capes of North America on the east and west coasts, together with the rivers, bays, and islands, should be memorized until they can be repeated with the glibness of "Old Mother Hubbard." The American boy, in like manner, should memorize the rivers of the United States in order, the states and their capitals, according to plan. In fact, he should memorize everything that is of enough importance to justify it. It often stands one in good stead to be able to repeat without thinking: "Maine, Augusta; New Hampshire, Concord; Vermont, Montpelier," etc. In geography, whatever is worth doing, is worth doing well; whatever is worth memorizing, is worth memorizing well; and whatever is going to be used a great deal should be set aside for memorizing.

Textbook Study. Geography is essentially a textbook subject and needs to be studied with that in mind. In studying about any country, or state, or province, there is one thing necessary at the beginning. The teacher must decide what are the important things to be studied. For instance, in the Tarr and McMurry, which I have before me, there is given a description of Egypt (Book II, Part II, pp. 378–81). In taking up this subject, the first thing to do is to decide what topics are worth considering. I should say that they are: (1) the Nile, (2) agriculture, (3) history, (4) present status, (5) the Suez Canal, (6) the two great cities. Others might not agree with this list, but if I were teaching the geography of Egypt, these are the points I should feel an American child ought to know about Egypt.

The next thing in preparation for study is to tell the pupils what these points are, and have them pay particular attention to them. In this lesson, I should set some questions about Egypt for them to study: —

1. What is the effect of the Nile upon Egypt?
2. What crops are raised in Egypt that might compete with American crops? Do they?
3. How is Egypt governed now?
4. Compare the Suez Canal with the Panama Canal.
5. Why is Egypt not now so great as it once was?
6. For what are its two chief cities important?
7. Draw an outline map locating the chief features.

Three things should be noted about these questions. *First*, they do not permit parrot answers. They require thought. For instance, Number 2 might have been, What crops do they raise in Egypt? But by giving it a little turn one gets the same items, but from a novel point, because Egypt is looked at in relation to American

markets. The *second* point is that, when they are answered, the pupil has sifted from the whole lesson those points that ought to be memorized. By throwing the information into the form of answers to questions a better hold is secured than would be if the teacher had said, " Read up on the Nile, agriculture, history, present status, and important cities of Egypt." Moreover, when the question is thrown into such a form that it will not permit of a merely memorized answer, it contains for the student a challenge that is decidedly stimulating to thought.

The *third* point worthy of note is that these questions admit of reference reading in other geographies and geographical readers if they are available, as they ought to be. For as fast as possible, pupils should be led to read in several books and to cull from each anything that will answer their problems.

SUMMARY. In setting assignments in geography, the first thing is to decide what are the points that are worth remembering about a country. The second thing is to call attention to these points by asking an assignment question about each one, so that when the pupil is getting the answer to the question he is learning the selected facts.

Imagination. Geography, history, and literature are subjects that, of all school subjects, depend to the greatest extent upon imagination. For this activity of the mind is the one by which we build up a picture of things that are not present to the senses. If the word *Egypt* brings to my mind's eye a picture of pyramids, sand-swept plains, the winding Nile, and the delta at its mouth, it can do so only if the imagination helps. In the chapter on spelling we mentioned several different types of imagery that are at hand for us to use, and showed

how in some people one type and in other people another type predominates. In this chapter, however, we wish to lay stress upon two other factors, which have to do with the process by which we call up, or build up, pictures of things.

The first fact of importance is that every image is the product of past experience. When I am asked to imagine a rose as large as a cart wheel, I may never have seen that sort of rose, but if I have seen a rose and a cart wheel, I can then imagine a rose as large as one. But if I have never seen a rose or a cart wheel, I cannot get the mental picture of a rose as big as a cart wheel. If a fanciful novelist draws a picture for us of the inhabitants of the moon or of Mars, he picks up a number of characteristics with which people are acquainted and puts them together in an odd way; but he cannot build up a picture whose ingredients are not in past experience.

This shows us that all world geography is dependent upon the past experience of pupils and, particularly, upon home geography. For instance, the following sentence can be understood and a clear picture formed only when the pupils understand the words and terms: *These mountains form a circle enclosing a broad level area called the Hungarian plain, through which the Danube flows.* Unless the children have a mental picture of a circle and level plain, they would hardly be able to get any idea of the topography of Austria-Hungary.

These pictures and definitions of terms in geography it is the business of the teacher to teach from the practical experience of the pupils. If the teacher wished the children to build up a picture of the Hungarian plain, and if the pupils did not get it by reading, he should

refer them to a similar location in their neighborhood if such a one could be pointed out: a level area surrounded by a circle of hills with a stream running through. If such a landscape did not exist in the neighborhood, an image of a circle, of a level plain, of encircling hills, and of a stream running through, should be called up one at a time and put together upon the request, "Imagine what this looks like: a great level plain surrounded by a circle of mountains, with the great Danube running through it."

In every case the children must start from their own immediate experience, if they are to get any clear idea of what they read. The second important fact to be borne in mind in the teaching of geography is that the geography pictures, or images, must be made very concrete. What I mean may be made clearer by a contrast.

One may teach the sentence, *The northern and western half of the Chinese empire is a region of plateaus, in some places as high as most mountains, and crossed by many mountain ranges*, in two ways. It may be hurried over and tested by one or more questions that require only a memory of the words to answer. The following is such a question: *Describe the surface of the northern and western parts of the empire.* Obviously, this could be answered by the words, *It is a region of high plateaus crossed by mountain ranges.* But there is no certainty that they have any picture of that portion of the empire.

It may also be taught more slowly and with assistance, so that they can *see* a high plateau, as high as some mountains, and crossed by mountain ranges still higher. And if this is an important fact, it ought to be taught slowly and vividly.

How to get Concrete Images. A very important ques-

tion follows from the foregoing: How can such vivid pictures be built up? To this psychology has one general reply. They must be built up out of past experience. And it has, also, a number of detailed aids in reorganizing.

Pictures. One of the greatest aids in teaching geography images is pictures. Not everything can be pictured, and even when it can be, there is a limit in volume. But as far as possible, everything described in geography should have a picture, if one is obtainable. Geographies by different writers should be on the library shelves. Children should be encouraged to clip geography pictures from papers and magazines at home. School scrapbooks classified by continents, and in the case of Europe and North America by countries, should be filled and added to from year to year. If money is available, stereoscopes which add the third dimension of depth should be at the disposal of the pupils. These pictures, both in books and out, should be handy, so that the pupils may look at them whenever they have spare time.

Maps. Maps help to make conceptions in world geography clear and definite. Flat maps cannot be accurate, because the earth which they represent is round, but they are accurate enough for children. They should be used extensively, and the pupils should draw maps for themselves.

Many teachers compel children to spend a world of time upon the technical details of maps, and most of this time is wasted. Ninety-nine per cent of all maps drawn should be sketched. They are not intended to be pretty, but to show in an offhand way the shape of the country and the physical features concerned. It is

better to sketch a map ten times in twenty minutes than to spend twenty minutes on one copy. The maps should not be slovenly, but time should not be wasted over them. A detailed and precise map may be allowed once in a while, just as a sort of flourish when all the study is over, but the flourish should not become a constant habit. The teacher gets a much better idea of a pupil's hold upon map drawing from a few of his sketches than from one of his masterpieces.

Type Studies. A type study is a detailed study of a great geographical fact. Such facts are deserts, trade centers, river systems, etc. A great saving of time and clearness of understanding results from such a study. For if, as McMurry shows, a study of the great basin of Utah and Nevada as a type of desert is made, the children learn a desert very clearly; and when the Sahara Desert, the Desert of Gobi, or the Australian Desert is studied, less time has to be spent upon each, because the children already know pretty well what a desert is.

In handling type studies, the important points are to decide what shall be the type studies for the year in each class, and to collect all maps, descriptions, pictures, and easy reading material upon these types. One may, however, select the types for study after he finds out those upon which most material is available. But in each case, every effort should be made to make the study as concrete as possible.

This concreteness may be secured at the expense of breadth of ground covered; for it pays better to cover a little and do it well, than to hurry over it all and make none of it clear. I should be better satisfied to leave out half the material in a geography text if I were sure that, as a result, what was studied was well learned.

SUMMARY. Concrete ideas of world geography may be built up in imagination by careful attention to the content of pupils' minds, by the use of pictures and maps, and by a leisurely passage through the subject, taking time enough to have the pupils see vividly and understand clearly as they go along. For this work, type studies are useful because they enable the teacher to go into detail here and there.

Rational Geography. In studying that kind of geography which seeks to explain why things are where they are, we make use of *deduction*.

In the chapter on grammar we showed how definitions and rules are, or may be, built up by the inductive process through an examination of particular cases. The same method may be used to build up principles in geography, such as definitions of geographical terms and the establishment of geographical principles. The terms, *cape*, *bay*, *island*, or *desert* belong to the first; the relation of climate to altitude, to latitude, and to the proximity of large bodies of water are examples of the latter.

However these principles may be learned, they are of use as soon as we begin answering the question Why? Suppose I ask why Winnipeg is so much colder than Vancouver in winter, or Minneapolis than Seattle. We have to go back to a number of principles to answer the question. One principle would be that the farther from the equator one goes, the colder grows the temperature. But since Minneapolis and Seattle are on the same parallel, they ought by this principle to have the same temperature. However, there is another principle to the effect that the proximity of a large body of water tends to keep the temperature higher in winter and lower in summer. This principle gives the clue to the answer to the question.

In all explanation in geography by deduction, there are just three factors that enter in: (1) There is a particular fact to be explained, or discovered; (2) there are some general principles of geography; and (3) these have to be brought together by what is called *inference.* In induction there were three steps: the examination of particulars, the comparison, and the statement of the generalization. In deduction we begin with the generalization. We do not need to discover the generalization—we have it; and by inference we connect it with particular cases. In the illustration just above, we start with a number of general principles about climate; and we have, also, the particular climates of Minneapolis and Seattle. Our business in deduction here is to find which of our stock of principles of climate fit these particular cases. This selection, or finding, is called inference.

So, also, I may have to hunt for some particular cases because they are not given to begin with. For instance, I may be an invalid whom the doctor advises to go to a region of rare atmosphere and warm days. I do not know of such a place, but I know two or three geographical principles. These are that rare temperature is found at a high altitude, but a high altitude is cold. However, the nearer one approaches to the equator, the warmer it is. So I set out, in imagination, to find a place in the mountains rather far south. I have found the characteristics of this place by inference.

In the upper grades rational geography can be used to excellent advantage. The whole tendency in teaching geography is to take the material as it is found, but the greatest fun comes from setting and solving problems whose solutions involve a knowledge of the principles of geography. Textbooks offer work of this kind, but the

teacher should set as his ideal the asking of such questions wherever within the pupils' powers to answer.

SUMMARY. Deduction is a process of thinking by which we apply rules and principles to the explanation or discovery of particular cases in which we are interested. It should be used in geography in the form of what is called rational geography wherever and whenever the teacher thinks the principles are in the possession of the pupils.

4. Class Mechanics

Alternation. It is usually found advisable to teach home geography in the third and fourth grades together. After this the fifth and sixth grades may alternate, and the seventh and eighth grades as well. This is easily possible in geography, because there is no close logical relationship between the series of topics. There is no reason why Europe should be studied either before or after Asia, since an understanding of one is in no way dependent upon a preliminary knowledge of the other.

Maps. Relief maps of putty, *papier maché*, or salt should be made by the classes. The sand table should be used constantly from the third grade up, for flat maps will not show relief.

Maps on paper should be done with pencil, and on paper upon which erasures can be made without difficulty. Only occasionally should ink maps be allowed, because they waste much time.

Scrapbooks. Old ledgers with every fifth leaf left in make excellent scrapbooks. There should be one of these for each continent, and one for the United States separately. All pictures cut from magazines and papers should be brought to school with their titles attached. When the study of any continent occurs, the pictures relating to it should be picked out of the pile of loose

pictures, and the class should decide which to paste in. This is done the first year; and the book, so begun, forms a nucleus for future additions.

Outlines. It is wise to have an outline with which to begin the study of the physiography of a continent. What this outline shall be is a matter of your own judgment. With this point understood, the following is suggested for each continent: —

1. Countries and capitals
2. Mountains
3. Rivers
4. Gulfs and bays
5. Capes
6. Islands
7. Peninsulas and isthmuses
8. Lakes and seas
9. Area (in comparison with other units)

In no case should any geographical name be listed under these unless it is of prime historical or commercial importance. Once the lists have been prepared, I am firmly of the opinion that each list should be memorized until the series has become second nature or, as the psychologist would say, until it has become automatic.

Topical Questions. In a former chapter we showed the advisability of asking questions which would require extended answers. This is particularly important in geography. For instances of these questions the reader may refer to the assignment questions on Egypt given a few pages earlier.

Geography Matches. Children get a good deal of fun and considerable training out of geography matches of the *what* and *where* variety. Sides are chosen sometimes, and the pupils are asked to tell " What and where is Magellan? Rhine? " etc. Once children get interested in this work, you will often hear them trying to "stump" each other on their way home or even on their way to the fishing grounds. This interest is valuable; and if the

teacher will be careful not to load it with a mass of geographical padding, it will produce excellent results.

Zigzag journeys may be used in tests or in class or just for fun. Here the teacher will inquire, " How can I get by water from Philadelphia to St. Paul, or Chicago?" or "What are my best railway connections from here to Seattle? "

Field Trips. In home geography, trips to near-by streams and studies in the school yard are quite valuable if handled with care; but care must be taken. Pupils are often harder to control outside the schoolroom; so the teacher who takes field trips should be sure of his discipline. There is great danger of wasting time on these trips. Therefore the teacher should know beforehand what he is going to do. He should always make a preliminary trip, himself. The pupils, too, should know what they are to look for and should be expected to give reports when they return to school.

The rural school-teacher can do little at this except when the whole school goes along, unless separate classes are taken after school or at noon. Parents sometimes object to these excursions, saying that they send their children to school to learn, and not to gad about over the country. So, taken all in all, field trips are good things, but have to be handled with care.

REFERENCES FOR CLASS READING

Betts. *The Mind and its Education*, pp. 128–42. (Training the imagination.)

Black. *Primary Methods*, vol. II, pp. 20–29. (Geography for the primary grades.)

Charters. *Methods of Teaching*, pp. 365–72. (Methods of securing realness.)

McMURRY. *Special Method in Geography*, pp. 139–64 (types); pp. 165–97 (course of study).

REDWAY. *New Basis of Geography*, pp. 139–71. (Pictures and maps.)

ROCHELEAU. *Intermediate and Grammar Methods*, vol. II, pp. 152–54. (Course of study.)

SUTHERLAND. *The Teaching of Geography*, pp. 155–59 (the deductive method); 183–215 (pictures and illustrative material).

WHITE. *The Art of Teaching*, pp. 275–94. (Course of study.)

CLASS QUESTIONS

1. Give the geography of corn; i.e., locate the corn belt and account for it in terms of soil and climate.

2. Give the geography of oranges, grapes, the sweet potato, cotton, and the hook worm.

3. Describe your geography of Mexico; i.e., the geography of Mexico which you know, however hazily. How does it compare with that possessed by certain of your friends?

4. Have any two people exactly the same geography? Why?

5. What are the advantages of learning geography lists until they are automatic?

6. What facts about South America should be remembered?

7. What type studies might be made with your state as the example? What with the United States as the country studied?

8. Count the number of pages given to each country of South America in some textbook, and see if these agree with your idea of the relative importance of the country to the United States.

9. Did you ever learn any lists in geography thoroughly? Give some, if you have. Have they ever been of use to you? Enough so to make you have your pupils memorize lists?

10. Set assignment questions for a chapter in geography selected from any book that is convenient.

11. What were the most interesting things in geography for you when you were in the grades?

12. Give a series of steps in describing the geographical history of a mahogany bedstead; of a dozen lemons; of a rubber eraser.

13. Give five instances of the correlation of geography with literature; with drawing; with agriculture.

14. Give five instances of faulty images in the study of geography.

CHAPTER X

HISTORY

1. Subject-Matter

Function. The function that history serves is twofold. It provides a pleasant occupation for a large number of people, who, for a part of their time, or for all of it, study it just because they like to know about what happened in the past. They are very well described by the poet Southey in these words: —

> My thoughts are with the Dead; with them
> I live in long past years;
> Their virtues love, their faults condemn,
> Partake their hopes and fears.

These people study history for its own sake. To them it makes no difference whether history has any practical use or not. And, of course, if they want to study about the past, they have a perfect right to do so. Many of the people who have lived in the past are worthy of study — more worthy than many of those who live to-day.

History may, however, be studied for its intrinsic value by people who are not very much interested in the past. These students study history to find methods for solving their own problems. For instance, a teacher may not care a great deal about the history of George Washington except as it helps her to get her children to tell the truth. Willie may object to telling the truth because he is afraid of a whipping. History will help by saying, "Here is a story of a great man who had a chance to tell a lie, and this is what *he* did." Or, a

boy grows discouraged about securing an education. History again furnishes an example in the story of the early struggles of Abraham Lincoln. Out of school, a sinner is afraid that he has " sinned away his day of grace." But history helps him by furnishing the story of the thief on the cross.

The foregoing are moral problems. But history aids in handling many other types of situations. Why is the South Democratic in politics? What should be our attitude toward the Philippines? Should the Federal Government of the United States conserve the forest wealth of the nation? History shows causes, precedents, results — provides us with data upon which to work in answering this question. There is hardly a problem or question raised to-day which does not have light thrown upon it from a study of history.

Summary. The function of history is to give us accurate information about the past. It helps us to solve our problems by telling us how other people have solved these same problems when they were confronted with them. We will get the greatest amount of value from history when we make it as real and concrete as we can, when as nearly as possible we can re-live the situations in which past peoples met these problems.

Patriotism. It is sometimes said that history develops patriotism. This it does by showing how many men and women in the past, when met by great crises, have, in attempting to solve the problems that confronted their countrymen, given themselves wholly and unselfishly, even sometimes at the cost of their lives. The spectacle of men so acting comes to the present generation as an answer to their questions about sacrificing self to country. Many a man when brought face to face with an issue that permits of an easy path to self-aggrandizement

or a difficult path to unselfish devotion to his country, has been influenced by the way in which some dead hero acted in a similar situation. And all citizens, whether brought actually face to face with such a situation or not, when they think what they might do if their country should make such a demand on them, are influenced to act in imagination in favor of their country. Such an attitude we call patriotism.

The Course of Study. The Committee of Seven published a few years ago a widely read report on "The Study of History in Schools." In it they gave an outline of a course of study for the grades which runs as follows: —

Grade III. Stories from the "Iliad," the "Odyssey," the "Æneid," the Sagas, the "Nibelungen Lied"; the stories of King Arthur, Roland, Hiawatha.

Grade IV. Biographies of characters prominent in history: *Greece* — Lycurgus, Solon, Darius, Miltiades, Leonidas, Pericles, Socrates, Alexander, Demosthenes, Plutarch; *Rome* — Romulus, Virginius, Horatius, Cincinnatus, Regulus, Hannibal, Cato, Pompey, Cæsar, Agricola; *Germany* — Arminius, Alaric, Charlemagne, Henry IV, Frederick Barbarossa, Gutenberg, Charles V, Luther, Frederick the Great, Bismarck; *France* — Clovis, Charlemagne, Louis IX, Joan of Arc, Bayard, Palissy, Francis I, Henry IV, Richelieu, Napoleon; *England* — Alfred, William I, Richard I, Warwick, Elizabeth, Sidney, Raleigh, Cromwell, Pitt, Clive, Nelson, Stephenson, Gladstone; *Southern Europe* — Mohammed, Francis of Assisi, Loyola, Prince Henry, Isabella, Columbus, Lorenzo de Medici, Michel Angelo, Galileo, Garibaldi; *Northern Europe* — Robert Bruce, William of Orange, Henry Hudson, Gustavus Adolphus, Rembrandt, Peter the Great, Kossuth; *America* — John Smith, Miles Standish, William Penn, La Salle, Patrick Henry, Franklin, Washington, Daniel Boone, Lincoln, Lee.

These names are suggested, not as a final selection to be rigorously adopted, but as indicating one way of arousing

interest and of conveying historical information at the age when ideas of time and place relations are only imperfectly developed, but when interest in individuals is keen and active. The list may be changed *in toto*, without changing the principle. The plan for these two years (grades III and IV) implies that the object is to arouse interest, that the method used is to be wholly the oral one, that the stories are to be united with lessons given in language and in geography, that the selection of myths and stories should aim to give universal rather than particular notions, and that the teacher should have a sufficient acquaintance with history and literature to be able to decide wisely concerning the selection to be made.

Grade V. Greek and Roman history to 800 A.D. *circa*.

Grade VI. Mediæval and modern European history, from the close of the first period to the present time.

Grade VII. English history.

Grade VIII. American history.

C. A. McMurry in his "Special Method in History" works out the following courses of study:—

Grade III. Christmas and Thanksgiving celebrations, Washington's Birthday, local history, Indian life and relics, the different nationalities in the community, and where they came from.

Grade IV. Discoveries and explorers: Pioneers of the local state, Henry Hudson, the earliest Dutch settlers, Champlain, the Five Nations, La Salle; with some optional topics.

Grade V. European explorers in America, and Western stories; European history: Spanish and Portuguese stories, stories of England and Scotland.

Grade VI. European history, including Persian Wars, Darius and Xerxes, the battle of Salamis, the Punic Wars, the Scipios; Colonial history in America, including Virginia, New York, Pennsylvania, and Massachusetts.

Grade VII. The Reformation in Germany and Europe, the Puritan revolution in England, Louis XIV and the French monarchy; American history, including the period from the beginning of the Revolution to the ratification of the Constitution.

Grade VIII. European history (a few selected topics);

American history from the ratification of the Constitution to the present time.

Criticisms. The course of study outlined by the Committee of Seven is biographical in grades III and IV. First come Greek myths, then follow biographies of Greece, Rome, Germany, France, England, southern Europe, northern Europe, and America. In the upper grades the order is strictly chronological: Ancient history, mediæval and modern history, English and American history in grades V, VI, VII, and VIII respectively. Except in grades III and IV, no attempt is made to teach the history that is of most interest to each grade. For there is no reason to think that ancient history is any better for the fifth grade than is English history. The historians who made the report were thinking more of the history and of giving it a chronological organization than they were of fitting the work of each grade to the children who are expected to study it.

The course of study made out by McMurry attempts to relate history to the children's natural interests. In the third grade he adapts the history to celebrations, to stories of local people, etc. His fourth grade material is composed of American biographies, and the fifth grade work is likewise biographical. In the sixth, seventh, and eighth grades the work is a combination of biography, with the Colonial period in the sixth grade, the Revolutionary period in the seventh, and America under the Constitution in the eighth grade.

McMurry says in effect that children all through the grades are interested in biography. In the third, fourth, and fifth grades they are interested in little else, but in the sixth, seventh, and eighth grades they are old enough

to begin to understand the development of the political government of their own nation.

In this he is as nearly correct as our present understanding will permit any one to be. Certainly the biographical element should never be lost sight of in the grades. The reason for this is in part that children like biography. But another reason is that facts and principles carry best by stories. This anyone will recognize if he remembers that a sermon whose points are illustrated by stories is better understood than one without stories. The Master Teacher's success as a teacher is due to the fact that He always illustrated his great principles by parables. Many thousands of volumes of the most scholarly kind have been written to explain what He meant, but his own simple illustrations in one little book have made more people understand what He wanted to teach than all these thousands of difficult explanations. So, in history, the facts and lessons contained therein are best understood and stick the longest in memory when they are associated with the lives that lived them.

Continuity in History. In any field of history, as American history, the people have had some problems that have been with them constantly. For instance, one problem that has confronted the American people is that of organizing all the separate states with their different interests and pasts into one united country. In Colonial history we study each state to see how each one grew up independent from the others, with its own government, laws, and ideals. In this period, while they were separate, they attempted from time to time to unite, whenever they were confronted by big problems, such as opposing the concerted attacks of Indians or the

encroachment of the French. They met from time to time and framed plans of union, such as Franklin's. In the Revolutionary period we see how they did get together to withstand England, and how, after the war was over, they tried for a number of years to frame a constitution that would give the states as much independence as they could keep while at the same time forming a real union. Then, after the Revolutionary period, we find this question coming up again and again. Finally, at the time of the Civil War an actual rebellion took place, in which some of the states fought to become independent, while others fought to keep the Union intact. Even to-day, the present administration is face to face with the question as to whether or not the states shall conserve the forests and national lands, or whether the National Government shall do so; and some writers claim that the differences of opinion are serious enough to split the Democratic party.

Rational History. This sort of history which seeks to show how a continuous problem runs through the subject, and endeavors to explain it by cause and effect, is called *rational* history. The other sort of history study may be called *factual*, because all it seeks to do is to teach facts. In studying rational history, it is necessary to understand not only that certain facts occurred, but just why they happened as they did. A factual study of the Civil War would deal merely with the facts. It would state that war began in such and such a year, that the Federal leaders took such and such measures, and that the Confederate generals did thus and so. If the war were studied rationally there would, in addition to this, be an attempt to explain why war was declared, what led the Federals to do this, and the Confederates to do that.

The most important question for teachers in all of this work is the amount of this reasoning from cause to effect that pupils in the grades are able to accomplish. The answer, in brief, as I see it, an answer based on empirical grounds, is this: Children in the seventh and eighth grades can do a great deal of this reasoning if the teacher will help them, but below that grade there is not much use in laying stress upon the connection of events in history.

Rural School History. It is probably not wise for rural schools to attempt to teach history to any extent in separate classes before the seventh grade. American history studied out of the ordinary text should begin there.

This does not mean that history will not be taught below these grades. One cannot help teaching history to children who read widely; for school readers have much historical matter in them. Supplementary readers should be partly historical. Special occasions, as national holidays, have historical settings; and many of the best story-books for children are founded upon historical events.

But in the seventh and eighth grades some attempt should be made to systematize American history. This will lead back at certain points into English history, but no systematic English history should be attempted.

SUMMARY. The course of study should have a strong biographical element. The reading material in all grades should and does contain much historical matter. But systematic history should, in rural schools, begin not before the seventh grade and then consist of only American history. In these grades attempts should be made to teach it rationally.

Standards. When pupils have finished the eight grades, how much history should they know? In answer-

ing this question we must define what we mean by the word *know*. One may have a great mass of facts and ideals that are a part of his make-up, but which he cannot organize or state. Or he may have facts that he remembers definitely. Now looking at the question from the first standpoint, I should say that the pupil should read as widely as he possibly can — not to remember all, but to absorb. The actual facts to be remembered need not be many. In dates, if he remembers 1492, 1607 or 1621, 1776, 1785, 1791, 1861, besides those he picks up naturally, he probably has enough. That is, he has enough if he *remembers* them. Of facts he should not be expected to remember many; the significant facts only are necessary, and it is not to be expected that he know the details. In the daily lessons, of course, he is supposed to know many details that he would not be expected to know at the end of the year or a year later. These are more numerous, but the number important enough to be made automatic is relatively small. In short, in history study, the pupils should read widely for what they can absorb; should memorize only a few facts, but those few should be remembered well.

2. Motive for Study

Immediate Interest. There is no such thing as immediate interest in history in the grades. If there were, the pupils would read any historical story with interest. There are only certain kinds of facts in which they are interested.

Mediate Interest. Children are fond of adventure, of bizarre stories, and of biography with action in it. To make history interesting to children, it has to feed these interests. To make children like history, it has to be the

kind they like. This is the case of the problem of getting interest.

One thing in which children are interested is special days, and these may be made a fine basis for much reading. Thanksgiving Day easily becomes the center of extensive work in Colonial history.

Local characters are frequently interesting because they are local. Daniel Boone can be made interesting to all children, but particularly to the children of Boone and Callaway Counties, Missouri, because some of his descendants live in these counties at this day. Then, too, stories of pioneers and the olden days in any locality have a fascination for children which will, in the higher grades, make them seek interviews and write stories for the rest of the class to hear. In fact, so strong is this, that in some country schools bright teachers with a love of history have organized little historical societies with the children as members, and these have collected relics of bygone days, such as books, candlesticks, guns, knives, and so forth, and have furnished a small museum in the school or in some other public place. But chief of all, the result has been that they have thereby developed a love of the past and a cherishing regard for the monuments that exist in the communities in which they live.

If I were an historian and wanted to write a text on American history which would make the children love the subject, I should make it 1000 pages long instead of 300. Instead of packing it with facts, I should select just a few great movements and events, and I should write all the interesting stories centering about them that I could find. Our histories are too small. For instance, an elementary history in front of me has 350

pages. The children spend nine months on this, which is at the rate of two pages a day. And all the material on these pages is packed and condensed till there is no fun left in it. The teacher who uses such a book should see that there are at hand for outside reading some other histories and, if possible, historical novels, which can be understood by the children; source books prepared especially for young students; and supplementary readers. To make history interesting it must not be concentrated history. There must be plenty of interesting detail. Condensed history is like hard tack. It is probably nourishing, but very hard to masticate.

SUMMARY. The secret of getting children interested in history is to make it biographical; center it around the interests of the children; and, particularly, put in plenty of stories and anecdotes that fill it in and give it body without making it more complicated. A teacher with a thin history book must supplement the text by outside readings of a simple sort.

Correlation. Anyone who has read the foregoing pages will see that history is easily correlated with many other subjects. These may be summarized briefly.

History works well with drawing, because the latter can be used as an illustrative medium. Many events can be portrayed; and a boy ought always, if he has gotten the content of what he writes, be allowed some little time for embellishment by pictures.

History and reading are also closely related, because, since one needs to read in order to master history, he can get practice in reading by reading history. If the basic reader in a school does not have plenty of historical material in it, a few historical supplementary readers should be purchased for the children.

Literature is correlated with history in two ways. Poems and speeches can be used to clarify historical events and make them interesting. The poetry that was written at the time of the Civil War and just prior to it, makes clear the intensity of the feelings during that national crisis. History also clarifies poetry. Without the historical setting of the "Star-Spangled Banner," that song loses half its value.

Geography, in particular, is correlated with history. Climate and physiography play such a tremendous part in all the affairs of men that they must, of course, leave their influence in a marked degree upon history. Climate affects health and bodily vigor. Climate, together with soil, as we said before, made the Southern people slaveholders. The mineral production of California made history. Streams of water with force and fall turn machinery and determine a nation's characteristics. Waterways facilitate communication and promote unity. Mountains affect inter-communication and tend to produce isolation. Mountains, too, promote freedom and love of independence.

Military campaigns are based upon geography. Here is a pass, there a point that commands highways of communication. These are strategic points which have to be taken, and history is made around them.

To make some of these connections between history and geography is one of the interesting tasks of *rational* history. The geographical explanation of historical facts is fascinating whenever it is followed with perseverance.

3. Methods of Study

Problems. The most important point in teaching systematic history in the seventh and eighth grades is

that each event in history is due to some defect in what has been done previously. When this deficiency is felt, a problem arises, and some events are carried through by the nation to solve this problem. Then, in return, this solution has certain results which often in their turn have defects in them and lead to new events which would seek to correct these defects. This statement can best be made clear by an illustration taken from an elementary school textbook in history.[1] On pages 266–68 occur the following sections:—

261. The first steam railways. In 1807 Fulton had proved that boats could be propelled by steam. Later it was asked whether "steam wagons" were possible, for use on land. George Stephenson, an English engineer, said that they surely were possible, and in 1825 he demonstrated this by opening the first steam railway in England. A year later, John Stevens built the first steam locomotive in America, and operated it on a little experimental railway at Hoboken, New Jersey. But for three or four years little more was heard of this new invention.

Between 1828 and 1830 the Baltimore and Ohio Railway, which had wooden rails with a flat strip of iron on top, was built for a distance of sixty miles out of Baltimore; its destination was the Ohio River. At first the cars were drawn by horses, although unsuccessful experiments had been made with sails. In August, 1830, a small engine, called "Tom Thumb," built by Peter Cooper, of New York, made its first trip over thirteen miles of this road. The "Tom Thumb" could follow sharp curves and climb steep grades, whereas the English railways were quite straight and almost level; and it could go much faster than any of the English-built engines. It was, therefore, better adapted to the conditions that existed in this country. Progress had been slow, but it had been sure; and inventors were much encouraged over it.

[1] "A History of the United States, for Grammar Schools," by Reuben G. Thwaites and C. N. Kendall. Houghton Mifflin Company.

By the end of 1831 several American railways, which before this had been using horses, were experimenting with steam locomotives. . . .

262. **The crudeness of early railways.** In the early years of the railways, however, their methods and equipment were very crude, compared with what we are used to. For instance, it was not at first thought to be possible to cross the Alleghany Mountains with steam locomotives. For a long time "portage" cars were hauled up or let down over the steepest parts by stationary engines. This system lasted until about ten years before the Civil War. The passenger who in those days wished to go farther west than Pittsburg, must, as in the time of the National Road, proceed by steamboat down the Ohio River.

For many years nearly every little stretch of railroad was built and owned by a separate company. The rules and gauges — that is, the distances between the rails — of these various lines often differed greatly from one another, and there had to be frequent transfers of "through" passengers and freight. But little by little the "roads of steel" were combined into the great "systems" that now cross our entire continent in every direction, and give us what is on the whole the best railroad service in the world.

Turning over to pages 404–406, we find the following: —

371. **The development of the West.** The West, particularly the Mississippi Valley, developed rapidly during and just after the war. The spread of population westward was greatly aided by the introduction of labor-saving farm machinery. These inventions made it easy for settlers from the Eastern States and Europe to open and operate farms on the prairies and in the forests of the great valley. Congress also helped this expansion in two important ways: —

(*a*) . . . .

(*b*) By the gift (1862–64) of large tracts of land and the loan of millions of dollars in money to the Union Pacific and Central Pacific transcontinental railways to induce them to build across the thinly settled plains.

At that time railway lines extended from the Atlantic Coast as far west as Omaha. If a traveler wanted to go beyond that

city he must do so by the overland stages along the California and Oregon wagon-trails. But the growth of Western population had now made it necessary to give the people better means of transportation to and from the region beyond the Missouri River. The Union Pacific began its line at Omaha and built westward. In most places it closely followed the old wagon-trail as far as the mountains. At the same time the Central Pacific was being built eastward from San Francisco, which is nearly two thousand miles from Omaha. In May, 1869, the two construction parties met each other near Ogden, Utah, and there, in the presence of a large crowd of spectators, connected their tracks by the driving of a golden spike. Thus was completed the laying of the first continuous railway line across the North American continent.

East and West were now more effectually united than ever before. The most immediate effect was greatly to hasten the settlement of the Pacific Coast and of the broad plains lying to the east of the Rocky Mountains. Pioneers from the Atlantic Coast with their families, farm utensils, and live stock might hereafter reach the Far Western country, the trip requiring about a week, much more easily and quickly than their fathers and grandfathers, fifty years before, could have reached Ohio, Indiana, Illinois, and Wisconsin by means of the Erie Canal and the Great Lakes, or by the Ohio River.

And further over, on pages 454 and 455, we read:—

414. **The Panama Canal.** Ever since the Spaniards discovered the Isthmus of Panama there has been more or less talk of cutting a canal through it, so that ocean-going vessels might easily pass to and fro between the Atlantic and the Pacific. However, not until 1881 was such a project actually started. In that year a French Panama Canal Company commenced operations; but after eight years they abandoned the task.

For several years nothing further was done about the matter. The United States then made her first move. A few months after Theodore Roosevelt became President (in 1901), our Government signed a canal treaty with Great Britain. It was agreed between the two nations that the United States should dig this canal. When completed, it was to be our prop-

erty and under our control; but it must be open to "vessels of commerce and of war of all nations . . . on terms of entire equality." Therefore, we bought the rights and property of the French company for $40,000,000, and are now, as rapidly as possible, completing the canal which they had begun.

When this great work is finished, merchant and war vessels of the largest size, belonging to every nation of the world, may readily pass from one ocean to the other, and thus save the long and often perilous journey around South America. By this means our eastern and western coasts will be brought much nearer together than before; and the farmers and manufacturers of the great Mississippi Valley may then ship their goods direct to every port on the Pacific.

NOTE. The distance across the Isthmus, from ocean to ocean, at the site of the canal, is but forty and one half miles. In 1903 the United States acquired from the Republic of Panama a wide strip of land on either side of the canal, called the Canal Zone, which is governed by a commission appointed by the President.

Remarks. Let us return to our first paragraph and explain it. Prior to the introduction of railroads people were compelled to get along with water transportation, stage, etc., and had done so for generations. Then they began to recognize that this was a very slow method and looked around for a new one. This was their problem — to get more rapid means of transportation. The solution of this problem was found in England where a steam railroad had been constructed. This idea was brought across the Atlantic and tried at Hoboken, New Jersey; and from that point it spread rapidly all over the country. How did this solution work? Certain good results followed as mentioned in the text.

These conditions lasted for a half-century or more and became old conditions, but the people began to see the defects of even railway transportation after a while. It did, to be sure, cheapen transportation, where water carriage was not possible, since it displaced expensive

transportation by means of horses. But it was much more expensive than water transportation. So a new problem arose — that of improving the waterways. One attempt at solution is the Panama Canal. There were, at first, several defects in the plan. In the first place, the United States did not own the Isthmus of Panama; England had maritime rights there, and the French had some equity in an old canal. This gave rise to a number of problems which were solved in the following series: (1) A treaty with England satisfied English claims. (2) The United States secured from the Republic of Panama control of the Canal Zone. (3) Thereafter they purchased the French equity in the old canal.

What the results of the Panama Canal, as a means of cheapening transportation, will be, is not yet known, because it has not yet become history; nor do we yet know its defects. That there will be some, giving rise to new problems and new solutions, is certain, unless history fails to repeat itself.

A New Method of handling Events. The usual plan of studying an event is to note its cause, describe the event, and list its results. A better method is to handle the event as the solution of a problem, and to have the six following topics under which to discuss it: (1) Old conditions; (2) Defects (giving rise to a problem); (3) Problem (to cure defects); (4) The event (the attempt at a solution); (5) The success of the solution; and (6) The defects of the solution itself.

The first selection quoted would then be outlined as follows: —

Event: Introduction of Railroads

(1) *Old conditions* — Water transportation and horse power.
(2) *Defects* — Slowness and limitations.

(3) *Problem* — Improvement of transportation.
(4) *Event* — Introduction of railroad, then used in England.
(5) *Favorable results* — (depicted in the quotation).
(6) *Defects* — Greater expense compared with water transportation.

The second quotation may be continued as a part of the foregoing beginning with (3): —

Problem — Cheapening of transportation.
Event — Construction of Panama Canal.
1. Treaty with England.
2. Treaty with Panama.
3. Purchase of French equity.

Favorable results — (not yet known).
Defects — (not yet known).

The particular topics selected are not fitted to this scheme in any peculiar way. Any event can be handled in the same manner if desired.

Summary. Events in history are merely solutions of problems. These problems arose because people were dissatisfied with their conditions and tried to improve them. Each event, then, may be studied under the six headings given several times in this section.

Dates. Not many dates should be required of the pupils. The important ones have been mentioned above. In these particular lessons the following dates are given in the quotations: —

1826, Introduction of the steam railroad in the United States.
1901, Canal treaty with England.
1903, Treaty with Panama.

The children may be expected to know these dates on the day of recitation, unless there are too many to learn.

This the teacher should decide upon, and advise the children which to remember. Perhaps these can be condensed to two: 1826 and 1903. But in a later review none of these ought to be required of the pupils, because none are of first importance. It is sufficient to remember that railways were introduced early in the nineteenth century, and that the Panama Canal was begun about 1900.

SUMMARY. Only a few important dates should be memorized.

Assignments. Country children have to study their lessons without having much time spent upon the assignment in class. The teacher, crowded for time, cannot read the lessons over with them in class before they study them. But the teacher can help them by giving them assignment problems to study. These may follow the scheme presented above. That is, the children may be expected to study each event under the six headings given above. They may read each topic and look for the old conditions, the defects, what happened, and its success, etc. This makes a very good sort of assignment and has the advantage of being used over and over again, so that the children do not need to have it written out for them each day.

Drill. One particular thing needs to be drilled on in every lesson. That is not dates, but names; for one great reason for the failure to retain history is the failure to remember names. Teachers often allow a child in a recitation to speak of " that fellow back there " or " some man whose name I can't remember," and children often take a sort of pride in confessing this ignorance. It is often a current joke to pretend that they cannot pro-

nounce the names; but if a boy cannot remember a name any further than to say, " that fellow back there," he is going to remember little of what happened. It should, therefore, be expected of all pupils that they pronounce all important names correctly and without hesitation. A teacher who does not require it is too lax in his requirements. Such a standard set up early in the year and adhered to works rapidly in bringing the children up to the requirements; for if they see that they are expected to master the names they will comply.

Pupils should be required to know important facts in any lesson on the day for which it is assigned. The important facts are those that are closely connected with the problems studied. For instance, they ought to know the causes of the Indian Wars, the main events in them, and the good and bad results, but little minor details should not be required of them. They should drill upon these enough to remember them in class. In reviews at the end of a history period, these facts should be in mind. When a review of several periods is to be made, perhaps only the events and their results on the history of the country need be remembered. As the period reviewed becomes longer and longer, the less important facts need not be required of the pupils. When a bird's-eye view of American history is taken, only the great facts should be reviewed. But there are facts that should be drilled upon till they can never be forgotten. What these facts are every teacher must decide for himself, for nobody has worked them out well enough to suit everyone.

Summary. The recalling of events to be remembered for all time should be made automatic. The important facts for each day's recitation should be required, but all the facts to be

remembered to-day need not be required of the pupils at the end of the year. There is one standard for recitation and another for reviews. Names in particular should be drilled upon till pronounced with correctness and facility.

Realness in History. We have said repeatedly that the more vivid and concrete history is made, the better for both interest and understanding.

Several things, as we saw in geography, assist children in getting clear images of what is not present. For instance, in the transportation quotations, anecdotes showing how long it took people to travel from one place to another, how much it cost, and the difficulties in the way of all travel, will assist in making the children see the vitality of the people's interest in railroads. These stories are not contained in the history lesson quoted and need to be collected, if possible, by the teacher. However, it can be best done by the author, which brings us back to my earlier statement, that the textbooks in history should contain a thousand pages instead of four hundred, and should not, even then, take up so many topics that full treatment may not be given to those selected.

To aid the teacher in getting this material, reference books and historical stories should be placed in the library. Such lists are given in books referred to at the end of the chapter.

Then, too, pictures are an aid to a more vivid description of events. Pictures of forms of early transportation, by stage, by horseback, by wagon, and by steamboat, and of the early railroad trains, all lend interest; and later, pictures of the Panama Canal and an intimate study of its construction.

Maps, too, lend their aid. A map showing trans-

portation routes both by rail and by proposed ocean way, are essential in the topics studied.

Relics, costumes, models, and sandtable representations are other means of getting clearness in these subjects.

SUMMARY. The best way to get vividness in history study is by means of detailed stories and anecdotes which make the situation concrete. Maps, pictures, and other forms of representation assist. The aim is to get the boy to see that history is merely *his-story* — a story into which he can throw himself with dramatic intensity, living over again the scenes as they were once lived by people of the past.

Current Events. We spoke above of the fact that history is of use chiefly in giving us information as to how to act wisely and efficiently to-day in the face of conditions that confront us. This has to be accomplished by the teacher, since textbooks are not often constructed with that in view. In the lesson on the railroads I purposely introduced the Isthmian Canal, because, while it comes 200 pages later in the book, it can very well be taken up earlier and along with the railroad lesson, because it does give just the up-to-date connection that is necessary.

This tendency can be emphasized by having current events as a topic in the history work. Little inexpensive weekly papers, like "Current Events," summarize world happenings and keep the children informed about everyday matters. This is important, not only because they ought to know what is happening, but because it makes it possible to use the history in explaining these events; for it is hard to connect history with modern events if no one knows what events are occurring.

4. Class Mechanics

History Notebooks. Notebooks in the hands of some teachers have done more to kill interest in history than any other single factor. There are some teachers who use history note-writing as their only kind of "busy work" to keep their pupils from getting into mischief. Such action is criminal. If notebooks are used in history, the contents should never consist of more than mere outlines. For if these books are to be used to recall facts, it is evident that the details can be secured from the text, and the outlines are all that need to be remembered.

Some outline notebooks have many good points, such as those in which there are blank maps to be filled in, but not much of the space intended for writing should be used.

SUMMARY. Since notebooks are of use only for remembering important points, notes should be notes, and not treatises.

Written Work. Most of the work done in history should be oral. Some writing is of use in fixing points in memory, but not much should be required, because, like excessive notebook work, it deadens interest. It is better to allow a boy to devote the time that would otherwise be used in writing too much, to reading widely. For, undoubtedly, he absorbs much from reading history books, even if he cannot remember much of it in sufficiently definite form to state in words.

Topical Questions. As in other subjects, so in history, questions should as far as practicable be topical. Let me illustrate from the paragraphs quoted upon the Isthmian Canal. The following questions might be asked:

(1) Why did the people of the United States want a canal? (2) What was their first move? (3) What did the treaty say? (4) What happened next? (5) What is the Canal Zone?

Here are five questions which might be shortened to two. (1) Why did the United States want to build the Panama Canal? (2) What were the events that happened before everything was finally ready to begin?

A moment's consideration will show that the second two questions will produce much better thinking and will give better ability in talking correctly than will the first five. In the first group the teacher does all the work. In the second two, the pupil does somewhat more nearly his share.

REFERENCES FOR CLASS READING

BRIGHAM. *Geographic Influences in American History*, pp. 200–09. (Relation of geography to history of Civil War.)
KEMP. *An Outline of Method in History*, pp. 81–101. (Relation of geography to history.)
MCMURRY. *Special Methods in History*, pp. 74–85 (the development method); pp. 238–68 (the course of study); pp. 269–91 (lists of reference books).
ROARK. *Method in Education*, pp. 208–13. (Class mechanics.)
ROCHELEAU. *Intermediate and Grammar Methods*, pp. 176–82. (Illustration of study of types.)
SANDERS. *Management and Methods*, pp. 262–67. (Devices in history teaching.)

CLASS QUESTIONS

1. Select the three most vivid accounts of historical events that you can remember having read or heard. How did the narrators secure this vividness?
2. Name ten modern problems upon which history will throw light. Treat one of these intensively to show what history has to say about it.
3. Take the reading books of the first six grades in a school

with which you are familiar, and list the topics in history with which they make the children acquainted.

4. What additional topics in history will they pick up incidentally from reading material at their disposal in the school library? Does this reading give the pupils all they ought to get of history in these grades?

5. Give five recent instances in which facts and principles have been emphasized for you by their being illustrated with stories.

6. Describe any attempts of which you know to teach history as a separate school subject below the seventh grade.

7. What facts in American history should an eighth-grade pupil be expected to remember, if he is not going on to the high school?

8. What local history sources are there in your home community? What people could give such information? Are the stories they have to tell worth recording and keeping? What historic spots are there that need to be preserved? Mention some relics that might be collected. What are you going to do about it?

9. Make a list, from the readers in the school with which you are most familiar, of poems and prose literature (not history selections) that will explain and make more interesting certain events in history.

10. Select five lessons from your history text, and outline them according to the problem solution plan that is proposed in this chapter.

11. What modern problems could you set in connection with each of the foregoing lessons?

12. What magazines and papers other than local papers do you read regularly? Are you proud of the list? If not, what can you do about it?

13. In each of the five lessons above make out a few topical questions.

CHAPTER XI

CIVICS

Function of Civics. The function of civics teaching in school is to enable students to get an intelligent view of the machinery of government. If this subject fails to give the pupil a sense of his responsibility as a citizen and a voter, to increase his efficiency in the performance of his civic duties, or to have for him anything more than a superficial appeal, then, though the knowledge gained from it will have some use, the time spent upon it will hardly be justified by the results.

Governmental Machinery. There are three classes of governmental machinery: local, state, and national. Each of these performs different duties, and a citizen has some participation in each. For instance, he votes for people to represent him in Congress, in the state legislature, and in the local offices. He may also pay taxes to support local, state, and national institutions. In the first two cases, the tax is a direct tax; in the third, the taxes are indirect.

It is not necessary to give the details of the machinery of government here, since they can be found in every textbook on civics. But, as our purpose in this chapter is to deal with problems in the teaching of the subject, we shall lay emphasis upon a few pedagogical points.

National Government. Civics is frequently studied in connection with history, and with good results; for in history we see the growth of the institutions and agencies that govern the nation, and the causes that have

made them as they are, and we realize that even though they may not suit everyone, they are in the main the best for the whole nation.

However, the machinery of which we get the best view in the study of American history, in the schools, is the National Government. We see how the constitution was framed, we study its clauses, we get an understanding of the powers and duties of Congress, of the federal judiciary, and of the President. Less attention can be paid to state government and still less to the local government, because the history studied is a national history, and only incidentally a state or local history.

The best place, then, to study national government is in correlation with history, because it shows the development, and growth, and general fairness of the national constitution and laws.

When governmental functions are studied in history, however, care should be taken that the pupils are not left with a purely abstract hold upon it. They should know who the leading officers are, such as their congressman, state senators, the President, etc. They should be acquainted with methods of election, the story of the attempts to pass amendments to the constitution, and such other facts as those interested in voting need to know to exercise intelligent suffrage and citizenship.

Local Government. But it must be acknowledged by everybody that the average citizen is touched much more closely by local government than by state government, and more closely by state government than by national government. And it is here that civics studied merely in relation to history has its great weakness. The government that touches the pupil least is given

the most attention, and that which is closest to him is studied least.

Points of Emphasis. Because of this weakness, there should be considerable study of local and state government apart from history. This may seem difficult in an overcrowded program; but, if necessary, one history period a week may be set aside for this purpose. Or, at certain times in the year, — for instance, when school, local, and state elections occur, — several history hours may be set aside for the study of civics.

Systematic Study. In such periods a systematic course in civics may be studied. The local officers of the county, village, and school district in which the pupils reside may each be examined from day to day and an effort be made to establish a systematic understanding of the whole system. And the same thing may be done for state government.

Civics has, unfortunately, the same difficulty to contend with that any systematic study has. It may not get into close contact with the pupils' lives. When they get through, they may not know what to do in concrete cases with which they are confronted from day to day.

Concrete Problems. So instead of a systematic study, the following plan may be substituted: Begin with some concrete problems that may face the pupils, and study governmental machinery to see how it is handled. A number of illustrations will make this clear, and show how easy the method is in application. The only requirement is that some governmental problems that are interesting to the pupils shall be selected.

Eighth-Grade Civics. Since government by anyone except the school and the family is an interest that arises late, local civics should not be studied below the

eighth grade, which is the last year of school. If one were sure that the children would finish the high school, it would be better to leave civics till that time, because they would then be interested in a larger number of civic problems. However, since most country boys and girls do not go to the high school, and since some knowledge of local government is necessary, and since they can get it better in school than by a hit-or-miss collection of facts later outside school, it is advisable to teach it in the eighth grade.

School Taxes. A teacher is safe in beginning the study of one branch of government with the school tax. The tax is a sure point of interest, because all know the reluctance with which people, and especially farmers, pay taxes; and their sons and daughters have enough acquaintance with this to make them likewise interested. The school they are well acquainted with, and so the combination of school and taxes is interesting.

No set of problems is the best. A teacher may make up any list that he prefers. The following is a series that is intended to be merely suggestive and to apply particularly to Missouri. The questions might be: —

(1) How much money did it take to run this school district last year? This necessitates getting the information from the district clerk, and the class thus meets with its first official.

(2) Where does this money come from? This leads to a consideration of the sources. These are: —

(*a*) Local levy.
(*b*) State apportionment.
(*c*) County tax.
(*d*) Tuition.

(3) If (*b*) is taken up, this question may be asked:

How is the apportionment made? This gives a fine opportunity in Missouri to show what happens if a child misses school for a day, and will give, also, a chance to see where the state revenue that is apportioned comes from.

(4) If (*a*) is taken up, many questions arise, such as Who determines the levy? What is the limit of levy? Suppose you ran a nine-months school, how much would the levy have to be increased? Or, If you build a new building at a cost of $800, what might the levy be? How does your present levy compare with the levies in the nearest towns?

These questions lead back to assessed valuation and the study of the assessor as a public officer.

When you pay your taxes, to whom are they paid? This gives an introduction to the collector.

Many other problems of a like sort can easily be arranged by the teacher, and may be pushed as far as desired. Their advantage is that when the pupils have finished such a study, they know many points of government that they will have to deal with every day.

When annual school meetings occur, they should be used by the teacher as the basis for a study of questions of organization; and eighth-grade pupils should be encouraged to attend such meetings.

Miscellaneous County Officers. A few questions will show the concrete method of approaching the subject of county officers.

(1) *The Recorder.* If you wanted to buy a piece of land, but were not sure that the title was clear, how would you find out about it? If one wishes to be married, to whom will he go to get a license?

(2) *The County Court.* Who fixes the county tax levy?

If you did some work for the county, to whom would you present your bill? Who looks after the county poor farm? If you wanted to open a new road, to whom would you apply for permission? Then, a study of the method of appointing the county court could be made.

(3) *Coroner.* If some person were found dead on the road, who would be notified?

(4) One question may bring in several officers; as, if a man is suspected of murder, who handles the case? These officers would include the *sheriff*, the *prosecuting attorney*, methods of *trial by jury*, etc.

(5) *Surveyor.* If you have a dispute with a neighbor about a line fence, what officer can settle it for you?

As said above, these are only a very few suggestive questions. But they illustrate a method that works very well in practice both for local government, as has been illustrated here, and for state government as well. However, if I had forty lessons to spend on civics in a year, I would spend at least thirty on local government, and not more than ten on state government.

Use of Books. Such a course as outlined would not follow any text, but it would need several books easy to secure. One of these would be the adopted textbook. To this should be added a few other single copies of other texts on civics for the library. Several copies of the school law should be available. (State Statutes are probably too cumbersome for use and too hard in many cases.) With these books available, that teacher who has never tried the plan will be surprised to see the amount eighth-grade boys and girls can dig out of a school law for themselves, if the teacher will show them how to use the index and direct them in their searching. It is, of course, a well-known fact that country pupils can do

more for themselves than city pupils. The reason is that they have to, because they are not able to summon the teacher to their assistance whenever they feel that they need help.

How can a List of Problems be secured? The way in which I secured these problems to-day was to take a book on civics, look up all the officers and see what the duties of each were. Then I asked some simple questions that would illustrate how these officers came in contact with the pupils. For instance, I found in the text that "the *recorder of deeds* keeps a record of all deeds, mortgages, and other documents having to do with the title or ownership of property. . . . It is also his duty to issue and keep a record of all marriage licenses." Other questions than those I asked might have been selected, but I selected these as an introduction, chiefly because they are of general interest and are pretty sure to appeal to boys and girls.

The plan of making questions is, therefore, very simple.

REFERENCES FOR CLASS READING

ROCHELEAU. *Intermediate and Grammar Methods*, pp. 183–88. (General.)

SANDERS. *Management and Methods*, pp. 268–79. (List of problems for study of national government.)

CLASS QUESTIONS

The exercise for this chapter would consist of the selection of all state and local officers and the asking of questions that are close to the children and that illustrate the duties of these officers.

CHAPTER XII

ARITHMETIC

1. Subject-Matter

Function. We have seen in each chapter that each subject taught in school has a specific function to perform, a function that no other subject can fulfill. In this chapter we shall see that arithmetic is no exception to the rule. For while geography assists us by taking care of climate and physiography, while spelling looks after the order of letters in words, and while history arranges the past for us, — so that we can get from each subject what we need, to control things of value, — arithmetic furnishes its share of assistance by handling number, or quantity, for us. Whenever we have to decide how many or how much, arithmetic will tell us.

This is, of course, very important because we do all our buying and selling by quantity — when we build a house, we need to know how much material and how many dollars it will take. We use number to arrange the school program for a day; so many minutes for the recitation, and so many for study. The housewife has to deal with quantities in the kitchen, in the dining-room, and in the parlor. Everybody every day he lives makes use of arithmetic almost every hour in the day.

Number has been such a fascinating subject ever since it was first studied centuries ago, that in every age since there have been many brilliant men studying it, and these men have laid down a great body of rules and principles that help to explain and control it. It is easily

possible to spend all the working days of one's lifetime studying the subject and still find that there is more to learn about number.

Until a few years ago, all teachers of arithmetic laid great stress upon the use of arithmetic as a fine means of training one to think accurately, and they claimed that if a child learned to think accurately in arithmetic it would help him to think accurately everywhere. But many recent experiments have shown that while the study of arithmetic may make pupils think more accurately in arithmetic, it has very little effect upon their thinking in other fields. For instance, a good student of arithmetic may be quite illogical in politics, or may not think clearly when he tries to trade a horse. So it is better for teachers, when trying to explain the function of arithmetic, to lay but little stress upon this point and to deal only with its intrinsic function.

Summary. The function of arithmetic is to enable people to handle numbers, so that they may do those things which they like to do and which depend upon a knowledge of number for their accomplishment. The indirect functions are not of importance outside the subject.

Course of Study. However, in the country school, only a very small fragment of all these facts are studied. Young children cannot, of course, understand it all, nor are they interested in it all. They need to know only the very simplest parts.

Then, too, the average grown person uses only a very few facts of mathematics. For instance, if you will try to remember how much arithmetic you use in vacation time when you are not in school, you will find very little. If you estimate the amount a woman uses in her work, you will find that she uses only a very few facts. A

farmer uses more than his wife, but all that he uses is very simple.

Since most children, therefore, are interested only in very simple arithmetic, and will use only simple arithmetic when they grow up, it is not necessary to teach many number facts to them.

Content of the Course of Study. But when we come to consider just what topics are necessary and advisable in arithmetic, we meet with difficulty. The old arithmetics had many topics in them that were not necessary in practical life, but the people who studied them as children feel that these are old friends and must not be discarded. So, as soon as anybody talks about eliminating this thing or that, the friends of the particular topic under consideration rise up and explain why it should be retained.

But progress is being made. For instance, cube root is now dropped out of most textbooks, going the way of alligation, the rule of three, tret and tare, and some other things our fathers used to study.

David Eugene Smith, an authority on the subject of the teaching of elementary mathematics, says that the following topics are all that need to be studied in the grades for practical purposes (though he would add others for cultural purposes): —

> For the ordinary purposes of non-technical daily life, we need little of pure arithmetic beyond (1) counting, the knowledge of numbers and their representation to billions (the English thousand millions); (2) addition and multiplication of integers, of decimal fractions with not more than three decimal places, and of simple common fractions; (3) subtraction of integers and decimal fractions; and (4) a little of division. Of applied arithmetic we need to know (1) a few tables of denominate numbers; (2) the simpler problems in

reduction of such numbers, as from pounds to ounces; (3) a slight amount concerning addition and multiplication of such numbers; (4) some simple numerical geometry, including the mensuration of rectangles and parallelepipeds; and (5) enough of percentage to compute a commercial discount and the simple interest on a note.

The table of troy weight, for example, forms part of the technical education of the goldsmith, the tables of apothecaries' measures form part of the technical education of a drug clerk or a physician, equation of payments may have place in the training of a few bookkeepers, but for the great mass of people these time-consuming subjects have no bread-and-butter value. How many business men have any more occasion to use the knowledge of series which they may have gained in school, than to use differential calculus? The same question may be asked concerning cube root, and even concerning square root; most people who have occasion to extract these roots (engineers and scientists) employ tables, the cumbersome method of the textbook having long since passed from their minds. A like question might be raised respecting alligation, only this has happily nearly disappeared from American arithmetics, although it still remains a favorite topic in Germany. Equation of payments, compound interest (as taught in school), compound (and even simple) proportion, greatest common divisor, complex fractions, and various other chapters are open to the same inquiry. These subjects, which are the ones which consume most of the time in the arithmetic classes of the grades after the fourth, are so rarely used in business that the ordinary tradesman or professional man almost forgets their meaning within a few months after leaving school.

Of compound numbers, which occupy a year of the pupil's time in school (a year saved in most civilized countries except the Anglo-Saxon, by the use of the metric system), the amount actually needed in daily life is very slight. The common measures of length, of area, of volume (capacity), and of avoirdupois weight are necessary. One also needs to be able to reduce and to add compound numbers, but rarely those involving more than two or three denominations. For practical purposes a problem like the following is useless: Divide 2 lbs. 7 oz. 19 pwt. by 5 oz. 6 pwt. 12 gr.

Most of the problems of common fractions are very uncommon. In business and in science, common fractions with denominators above 100 are rare, the decimal fraction (which has now become the "common" one) being generally used.

What, then, should be expected of a child in the way of the utilities of arithmetic? (1) A good working knowledge of the fundamental processes set forth on page 21; (2) accuracy and reasonable rapidity, subjects which will be discussed later in this work; and (3) a knowledge of the ordinary problems of daily life. Were arithmetic taught for the utilities alone, all this could be accomplished in about a third of the time now given to the subject.[1]

SUMMARY. Only those processes which have practical value should be taught in the grades. This means that many topics now taught should be eliminated from the course of study.

When to teach Arithmetic. There is a growing tendency to delay the teaching of arithmetic as a separate subject. In every grade, in connection with other subjects, and particularly in the primary grades if the handicrafts are taught and games are played, much arithmetic is picked up incidentally. But this arithmetic is learned in correlation with other subjects, and is not learned in a separate class. All schools used to start arithmetic in the first grade. More recently many schools are leaving it till the second grade, and a few do not begin it till the third grade. Some authorities advise postponing it until the fourth grade.

The argument for leaving it till later is the same argument that is used for deferring the study of grammar. It is claimed that systematic arithmetic is too hard for little children, and that if you wait till they are more mature they will learn it more rapidly and will understand it better. An inexperienced rural teacher is

[1] "The Teaching of Elementary Mathematics," by David Eugene Smith. The Macmillan Company.

almost compelled to follow the texts adopted, but he should if possible leave the teaching of the subject in a separate class till the second grade at least. The children's time that is devoted to arithmetic in the first grade can be better spent upon handicraft work, in playing games, and in reading. Indeed, so far as arithmetic is concerned, they are picking it up all the time when they study handicrafts and play games, if the work is wisely selected. Arithmetic, in my opinion, can be safely left till the fourth grade, if textbooks are written with the intention of teaching it from that point on to the eighth grade.

SUMMARY. Separate arithmetic classes should not be taught in the first grade; it is better to defer them to the second grade; and probably it would be better to begin arithmetic in the fourth grade if our textbooks were built with that in view.

Standards. A student has a good hold upon arithmetic when he is able to perform the operations with accuracy and speed. Of the two, of course, the former is the more important; but the latter is also quite important and is sought after just as rapidly as accuracy will permit.

Since speed and accuracy come with practice, an important part of instruction in arithmetic is drill, a topic to be discussed later in the chapter. Recently some standard tests have been worked out in arithmetic by two investigators, — Courtis and Stone. One of the series is on the market in sets, and the literature may be secured by writing S. A. Courtis, 441 John R. Street, Detroit, Michigan. Some of the tests are for the fundamental processes, and some for reasoning. They test both speed and accuracy.

The advantage of trying these test forms is that they are used widely all over the United States, and afford a basis of comparison among schools. They are of use in comparing pupils in the same school. But they are particularly useful in comparing a pupil with himself. A pupil may be tested in multiplication to-day, and his score determined. Perhaps this score is low; if so, the pupil may be set to work to see how much speed he is able to acquire in a month. Then, at the end of the month, he may be given the same test, and his improvement or lack of improvement noted. On the other hand, the pupil may have a high average in the first test, but at some subsequent time his work may become careless. If then the teacher repeats the test, the falling off will be brought home to the pupil pretty clearly.

These tests are good for the teacher, because by testing the whole school at the beginning of a month and at the end, he can see whether the pupils are advancing as rapidly as they might. County superintendents might use them, also, to compare the pupils at the beginning and the end of a school term.

Summary. Definite and standard tests should be given to pupils from time to time to note excellence and improvement.

2. Motive

Immediate Interest. As in all subjects previously discussed, so, in arithmetic, there are pupils who enjoy the work for its own sake and who take much pleasure in the solving of arithmetical problems. To such pupils, the subject is said to have immediate interest.

One reason why many pupils do not like arithmetic is because it is too hard for them. This, in turn, may be due to three causes: The work may have been begun

before they were old enough to understand it. Or, they may have gone over the work too rapidly to make number facts into habits. Or, too many catch questions and intricate problems may have been given them.

Hence, if there is any desire to keep or to get children interested in the subject, the work should be gone over carefully and slowly, and it should be simple enough to keep the pupils from growing discouraged. There is no reason in the world why every problem in the book should be assigned to every pupil nor why every problem should be assigned to anybody. The hard ones should be left for the bright children.

Interest and Generic Values. As in the other subjects, so in arithmetic mediate interest may be secured by an appeal to grades, to promotion, to desire to please, and to the other values that may be called upon in all subjects.

Interest and Specific Function. In arithmetic as in other subjects, the teacher may appeal to the specific function of the subject. In this case we know that the function of arithmetic is to give us a hold on numbers so that we can do things we want to do. So the teacher needs only to find things that the pupils like to do, and that at the same time involve the use of numbers. A few of these will be discussed.

Handicrafts. Boys like to work with tools, but no one can get very far in making things without measuring lumber and computing sizes. Little children in modeling, paper cutting, and raffia work, also need to count and to measure. Hundreds of cases of the use of simple problems in addition, subtraction, multiplication, division, and fractions arise in the course of the year in the lower grades; and somewhat more complicated operations occur in the upper grades.

When such operations occur in work which is enjoyed by the pupils, they perform them with interest, and sometimes without even thinking or knowing that they are working arithmetic. It often happens in the higher grades that boys who have never liked arithmetic begin to take an interest in it and to show marked proficiency when they have found it of use at some time in manual training.

Plays and Games. It is a well-known fact that such a game as dominoes gives pupils marked ability in adding and subtracting. This game played with little cards which have the domino marks on them may safely be played by two children in school on the top of a double desk, unless certain benighted parents object too strenuously.

Other simple games, such as "Odd or Even," "Hully-gully handful," bean bag, and ring toss, come quickly to mind as games that are played during school hours in many schools. To these may be added a number of games that are played out of school, games which the teacher may teach the children. These include crokinole, flinch, marbles, numerical modifications of "Simon says thumbs up," and so forth.

These games have, of course, many other values in education, but we discuss them here only in relation to arithmetic. A selected list is appended in a reference at the end of the chapter.

Practical Problems. Interest attaches itself to arithmetic when problems taken from the life of the pupil at home are chosen. Agriculture in the country furnishes hundreds of these problems. Measuring land, stacks of hay, and bins of wheat, estimating the cost of lumber for a barn, the percentage of gain due to spraying, the

rations for cattle and horses, and the profit in beef-raising are a few that show the richness of this source of interest.

The use of these will obviate the criticism of business men and others that when children get through school they may know some arithmetic but they are unable to use it in ordinary practical situations.

Arithmetic texts are giving more and more of these problems every year, but a bright teacher does not need to depend upon them. He can make up problems for himself, and he ought to do so if he wants his work to be efficient.

SUMMARY. Immediate interest in arithmetic may be present. If not, an appeal may be made to generic values or to other subjects, such as the handicrafts; to plays and games; and to interesting problems, — all administered in such a way as to give arithmetical practice and intelligence.

3. The Study of Arithmetic

Elements of Arithmetic Teaching. There are just three things that the teacher has to do in arithmetic. He has to see that the pupils understand the processes in arithmetic, such as addition, subtraction, etc.; he has to be certain that they drill on these enough to gain accuracy and rapidity; and he has to help in the solution of problems in which one or several of these processes are involved. That is all there is to arithmetic: an understanding of the processes, skill in repeating and working them, and reasoning in problems in which they are involved. Or, in a word, the three essential elements are teaching the processes, drill, and reasoning.

Teaching the Processes. There are three facts of importance in teaching the processes of arithmetic. The *first* is that when children begin to study arithmetic

they know a good deal about it in a concrete form, and that they have to learn to use symbols. For instance, a pupil, if given one apple and then another and asked how many he then has, will probably be able to state that he has two; but he has after this to learn the symbols that express the abstract relation implied — that is, $1+1=2$.

To learn to think by symbols instead of by objects is a very long step for children to take. This fact constitutes the reason for using objects in teaching number to children, since we are anxious to have them see that symbols are not meaningless things but stand for something about which they already know.

Objects should, then, be used until the pupils can get along without them, and an effort should be made to get them to do this as soon as possible; they must not, however, be hurried. Whenever a new process is to be taught, objects, diagrams, etc., that will make it easier to understand, should be used until the new work is mastered. Often a diagram will help an eighth-grade pupil to understand a problem when, for a long time, he has been able to perform addition and multiplication without objects. But the general principle holds that when objects have bridged the gap between concrete quantity and numbers, they should be discarded to keep the children from relying too much upon them.

The *second* fact in teaching the processes is that where the process is too hard for the pupils to understand, but not too hard for them to use, it should be given to them without explanation. For instance, if square root is taught in the eighth grade, it is unwise to explain why we double the quotient and multiply by the new quotient,

etc., because that cannot be understood until the pupils have some knowledge of algebra.

On the other hand, if a pupil can easily be taught the reason for a process, it ought not to be taught to him mechanically. For instance, we might tell a pupil in carrying in addition to put down the right-hand digit in the sum and carry the other digits to the next column to the left. But it is so easy to teach carrying by means of bundles of splints that it is criminal not to do so.

In short, we may lay down the general principle that when children can easily learn the reasons for a process they should be taught it; but that, when the reasons are not easy to understand, the teacher should have no hesitancy in teaching mechanically.

The *third* fact is that in teaching rules and principles, induction may frequently be used to good advantage. For instance, in such a lesson as the addition of fractions, after the children have learned to add fractions with the same denominators and are to be taught to add fractions with unlike denominators, the teacher, instead of telling how to do it, might begin the lesson by giving a few drills on $\frac{1}{3}+\frac{2}{3}$, $\frac{3}{4}+\frac{2}{4}$, etc.; and then $\frac{1}{3}+\frac{1}{5}$ may be put on the board and the children asked to add them. Since they cannot, the teacher may then say, " I shall put three problems on the board to show you how it is done, and you may work out the rule for me: " —

$$\frac{1}{3}+\frac{1}{5}=\frac{5}{15}+\frac{3}{15}=\frac{5+3}{15}=\frac{8}{15}.$$
$$\frac{1}{4}+\frac{1}{3}=\frac{3}{12}+\frac{4}{12}=\frac{7+3}{12}=\frac{10}{12}.$$
$$\frac{1}{5}+\frac{1}{6}=\frac{6}{30}+\frac{5}{30}=\frac{6+5}{30}=\frac{11}{30}.$$

Here is the presentation of three particular cases, which the pupils compare, and from the comparison

they reach a generalization, without having formulated the principle of reduction.

After they have discovered how it is done, the teacher may take up the reason underlying the process, in order to insure the pupils' getting something more than a merely mechanical grasp of the rule. The inductive method can be used in very many cases; and when it is used, the pupils take much more interest in the process than if they are just told it.

SUMMARY. In teaching the processes three things need to be borne in mind. These are: *first*, that pupils have to learn (slowly) how to use symbols instead of objects; *second*, that, in teaching processes, the reasons for them may be given where they are not difficult, but that the teacher should not hesitate to teach them mechanically when an explanation is too difficult; and, *third*, that the inductive method should be used as much as is practicable.

Reasoning. Problems involve the use of the arithmetical operations. In one problem there may be involved addition, subtraction, percentage, or any other combination. Reasoning consists merely in selecting the processes which will solve the problem. After these have been determined, all that is needed is skill in carrying on the operations. For instance, in a problem like this, *If two boys mow a lawn in two hours, how long will it take three to do it, working at the same rate?* — reasoning consists in deciding that it will take two-thirds of the time. After that, all that is left to do is to perform a simple operation in the multiplication of fractions: $\frac{2}{3} \times 2$ hours $= 1\frac{1}{3}$ hours.

This task of selection requires a good degree of mental brightness and is rather difficult at times. So teachers should, sometimes, help pupils to analyze difficult problems.

Solving Problems. The form that this analysis takes is based upon psychology; that is, upon the way the mind acts in solving problems. A very simple statement of the mental actions involved in solving problems will make this clear.

I remember that once I was given this problem to solve: —

A man sends $3037.50 to a commission merchant to invest in wheat at $\frac{1}{8}$ per cent commission. How many dollars' worth of wheat is bought?

I figured as follows: —

If the rate of commission is $\frac{1}{8}$ per cent, then the amount of commission is $\frac{1}{800}\times\$3037.50$, or $37.97, and the amount invested is $2999.58.

But, on second thought, I found that, if this were invested at $\frac{1}{8}$ per cent commission, the amount would be $37.49, which did not agree with the commission as worked out on the other basis. So I figured again, and after one or two other trials arrived at the idea that to invest $100 it was necessary to send $100.125, and hence the amount to be invested would be

$$\frac{100}{100.125}\times 3037.50, \text{ or } \$3000, \text{ making } \$37.50.$$

Then I checked up and found that $3000 invested at $\frac{1}{8}$ per cent was $37.50. So I concluded that this answer was correct.

Finally, when I knew it was correct, I wrote out a solution in good form for the teacher as follows: —

$100.125 must be sent in order to invest $100.
$3037.50 must be sent in order to invest
$\frac{100}{100.125}\times\$3037.50=\$3000$.
$\therefore$ $3000 must be invested.
Check. $3000 at $\frac{1}{8}$ per cent commission $=\$3000\times.125=\$37.50$.
Amount sent $=\$3037.50$. Correct.

If we analyze what was done, we find the following factors: —

(1) I had to know what was to be found. In this case the amount invested.

(2) I needed to know what data were given. These were $3037.50 sent, commission $\frac{1}{8}$ per cent.

(3) I tried two plans of solution before I found the right one.

(4) I checked to see if I was right after trying each plan.

(5) I wrote out a systematic statement.

This is what we always do when we have to work hard problems. Logic applies some technical terms to these factors which it is well for us to know. The logician would say that in solving a problem we need *first*, to define our problem; *second*, to find out the data; that is, what is given; *third*, to make several hypotheses (or guesses); *fourth*, to verify the hypotheses; and, *fifth*, to make a logical organization.

For our purposes in arithmetic, more familiar terms may be used. And we may say that what we have to do are the following: —

(1) State what is to be found.

(2) State what is given.

(3) Work out a solution.

(4) Check.

(5) Make a systematic statement.

These five steps will take care of the analysis of any problem. Take, for instance, a problem like this: —

If milk is 28 per cent cream, and the cream is 35 per cent butter fat, and the butter fat will make $1\frac{1}{8}$ times its own weight in butter, how many pounds of butter can you get from 100 lbs. of milk?

If we analyze it, we may make the statement as follows: —

(1) To find: Amount of butter from 100 lbs. of milk.

(2) Given: Milk is 28 per cent cream, cream is 35 per cent butter fat, 1 lb. butter fat makes $1\frac{1}{8}$ lbs. butter. Given also: 100 lbs. milk.

(3) Working out a solution.

(4) Check.

(5) Systematic statement: —

100 lbs. milk = .28 × 100 lbs. cream = 28 lbs.
28 lbs. cream = .35 × 28 lbs. butter fat = 9.8 lbs.
9.8 lbs. butter fat = $9.8 \times \frac{8}{9}$ lb. butter = 11.025 lbs. butter.
Check: $11.025 \times \frac{8}{9} \times \frac{100}{35} \times \frac{100}{28} = 100$.

In connection with this I wish to make a few remarks.

First. The statement that pupils make of a solution should be written neatly enough to be easily read. The teacher and pupils should decide on what they think are the best forms for statements, and the pupils should thereafter adhere pretty closely to those. But — and this is very important — a pupil should not be scored heavily if he is not successful in making a statement, provided he gets the answer. Many teachers lay so much stress on statements that children come to hate arithmetic. The answer is the important thing in ninety-nine cases out of a hundred; the other case is the occasional chance that a pupil has hit upon the answer by accident and does not understand how he found it. Statements should be insisted upon, I think, only in seat work, and in other cases where the teacher is in doubt about the pupil's ability to solve the problem.

There is no best statement. Any one of a number will do, and children coming from other schools may

have different ways of expressing their solutions. At such times the teacher should go slowly and patiently in teaching them the forms current in their new surroundings. Statements should not be cumbersome. Each step in the solution of a problem should be as brief as possible, and I should be willing to accept the following statement for the milk problem as correct and sufficient:

$$\frac{100\times.35\times.28\times9}{8}=11.025 \text{ lbs.}$$

It shows the teacher that the pupil knew what to do and did it.

Second. The directions for solving a problem need not be written out by the pupils in every problem. It is cumbersome, but pupils should probably be taught to follow that plan. That is, they should be taught, first, to look for what is to be found; second, to find the data, etc. When these directions about solutions are being taught, they should, occasionally, be written in order to help the memory until they can be repeated by heart; but after that it is sufficient if the pupils are able to give a statement of the steps from memory when called for.

Third. The third step, that of guessing, is a good thing for the pupils. (By guessing is meant an intelligent guess, not a wild guess.) They should not be shown at once how to get the right solution; but, rather, they should be given time to work the problem for themselves. However, children in country schools have to do more of their work for themselves than do children in city schools where the teacher has more time to spend on them. That fact explains why country pupils who are good students are more independent in their thinking,

and more self-reliant than are city school children. They are compelled to work things out for themselves, trying over and over again till they get the right solution.

SUMMARY. There are five steps in solving a problem in arithmetic. These are: (1) determining what is to be found; (2) stating what is given; (3) working out a solution; (4) checking; and (5) making a final statement. The statement is not always essential and should not be allowed to kill interest. The pupils should be given a chance to work a problem for themselves before being shown how; and, in working their problems, they should use a systematic procedure, such as the five steps above, because that has been found to be the natural way for the mind to act when working most effectively.

Drill. To work problems is the final goal of arithmetic, but no pupil will have much success or happiness in this task unless he knows the fundamental operations so well that he can perform them rapidly and accurately. If, in the milk problem above, he makes mistakes in multiplying $.28 \times 100$ or $.35 \times 28$ and finds everything coming out wrong, he will grow discouraged and self-distrustful.

To get accuracy and rapidity we need drill. It is all a matter of habit, the laws of which we have taken up over and over again. Arithmetic is no exception to the rule. What is needed is, first, a clear initial understanding. The pupils must know the facts of addition, subtraction, multiplication, division, fractions, decimals, and percentage, to begin with. Care must be taken to see that they are taught clearly. Then follows attentive repetition. The children must have exercises of various sorts that work for speed with accuracy. Every time the teacher finds that the pupils are making errors in their problems or doing them slowly, he should make it an occasion to point out the fact, perhaps to make fun

of them in a kindly way, so that they will realize the necessity for drill.

One of the best means of drill is mental arithmetic. It has been shown by experiments that time is gained in the end by having some mental arithmetic every day. In the country school five minutes may be given to the upper classes. This drill should be conducted slowly enough at first so that at least three fourths of the pupils can give the correct answer. The speed should then be increased as the class improves.

Another good means to make the pupils interested in drill is to give tests for speed, such as the Courtis tests or others made out by the teacher. Occasionally stimulate the pupils to beat their own past records. If, for instance, on March 7th a boy has a score of 64, he can be interested in running it up by April 1st; and if he finds that he has increased to 67 he will try to beat it by April 15th. This racing against one's self is the most stimulating form of rivalry that can be used.

Then, there are many devices to be used in class, such as memorizing tables, multiplying the numbers on the dial of the clock by various multipliers, etc. These and other devices are mentioned in references at the end of this chapter.

But through it all, drill work must be snappy and quick. To get this, ground must not be covered too fast. But, just as calling words in reading is due to the failure of teachers to insist upon fluent reading from the first grade up, so slow arithmetic work is due to flabby and slovenly standards of speed and accuracy.

Some teachers cannot be good teachers of arithmetic because they have none of that good old household remedy, ginger, in their make-up. A class with an easy-

going teacher will be just as spirited as the teacher, and no more. If a football coach does not put snap into his team, it is beaten and he feels chagrined. But if a teacher does not put snap into his arithmetic, nobody knows about it. He is able to cover up his slovenliness. It would be better for him if he were in the limelight like a football coach.

When a boy has learned his operations so well that he can add a column of figures correctly while thinking about a piece of watermelon, he has reached perfection; for he has reached the goal of all habit, to be able to perform the habit while thinking about something else.

SUMMARY. Drill is a prime essential in arithmetic. After an operation is understood, it should receive snappy drill at frequent intervals, until it becomes automatic. Various methods of stimulating interest are suggested.

Application. To work problems is, as we have said, the goal of arithmetic instruction. These problems may come from two sources. The teacher and textbook may supply them, or the pupils may make them up; and both sources should be used. Problems should be practical. There is no use in teaching processes that do not have practical application. So, if the text used in the schools does not contain many practical problems, then the teacher must secure other texts that have them. And, in addition, he should make up problems, a task quite easy if the teacher knows anything about farm life. The criticism is constantly made that pupils may know arithmetic but that they are not able to cast up an account, to write a receipt, to draw a note, write a check, compute interest, measure a field and tell how many

acres are in it, estimate the amount of money necessary to build a shack, or determine the number of bushels in a bin or corn crib. Nor can we deny this accusation.

To cure the defect, the teacher should study the farm and make a list of the things that farm men and women use in their everyday lives; this list should thereafter be kept on file. Then, from day to day, as occasion arises in school, these items should be brought in, as practical applications of what is being taught in the arithmetic class.

Pupils should be encouraged to bring practical problems to school for the class to work upon. What is more interesting than for John, when his father is going to build a cattle shed, to get the dimensions, etc., from his father and have the class work out the cost of the lumber and timbers? John may not bring all the data to school the first time he tries; but when he finds that the class cannot work his problem because he has forgotten something, he will receive a valuable lesson in carefulness and will take pains to get the proper statements next day. If none of the pupils on their own initiative bring problems, the teacher, when he hears of the construction of a building or the selling of cattle, as he will hear in a country community, should embrace the opportunity of getting live material for arithmetic and ask some boy or girl to get the data for him.

SUMMARY. To solve problems and especially practical problems, is the final goal of all arithmetic study. The teacher should, therefore, see that the pupils are given this type of problem, and should avoid "factory-made" problems which are constructed by textbook writers for the sole purpose of giving exercises on arithmetical operations. Pupils, likewise, should be encouraged to bring practical problems to school.

4. Class Mechanics

Tables. The critical point in the mastery of the four fundamental operations — addition, subtraction, multiplication, and division — is the learning of the tables. For, although a pupil may be able to recite the tables glibly and still make many errors in carrying on the operations in problems and exercises, he wastes time and loses accuracy if he does not know them glibly.

The chief advantages of knowing the tables automatically are two. In the *first* place the tables give a rhythmical drill. There is such a fascinating swing to them that children who are learning them often repeat them for the fun of the jingle, just as they repeat nursery rhymes for the rhythm. Yet from this singsong repetition there is much good; for the child is saying over and over to himself $6\times7=42$, all the time fixing the facts and working toward that goal which is attained when 6×7 automatically suggests 42. The *second* advantage of well-memorized tables is the hold it gives on individual facts. For instance, Willie may have trouble in remembering whether $8\times7=54$ or 56. But he always remembers, let us say, $8\times5=40$. So by starting at $8\times5=40$, he can get into the swing of the table; and when he gets to 8×7 he at once remembers that, of course, it is 56.

Eight seconds is a reasonable time to take in repeating a table. This requires that they should be memorized until the pupils are able to repeat them without halting. It takes just a little more practice to raise halting tables to glib tables, but that little makes or mars their usefulness, for halting tables are of no more use than no tables.

Tables should be memorized in three ways; forward, backward, and by " skips." The first and second can be done by the pupil himself. By skipping is meant taking the facts out of their order in the tables; for instance, instead of saying, $8\times1=8$, $8\times2=16$, etc., the order may run: $8\times5=?$ $8\times9=?$ $8\times2=?$ etc. This comes in exercises such as 8467×8 or in special drill exercises given by the teacher as in the clock-face exercise. The aim of the drill upon tables is to make the pupil proficient in skipping; because in problems, only once in a great while do we get a problem as nearly like the table as 1234×8.

Summary. Tables should be memorized thoroughly backward, forward, and by skipping. They should be learned for all the operations, because they provide rhythmical drill and assist the pupil when he forgets individual facts. But to be of any use they should be memorized so thoroughly that they can be recited without halting and with the glibness of "eenie — meenie — minie — mo."

Assignments. Assignments are easier to make in arithmetic than in history or literature. For, as we saw in those subjects, the teacher often has to make out assignment problems, but in arithmetic the problems are already made out.

But this one fact must be emphasized. Children should not be expected to learn new operations from the textbook. These should always be developed in class. A teacher may, for instance, give as an assignment a chapter on addition of fractions which has not been studied before, and expect the children not only to add fractions, but to learn the operation for themselves. This is wrong. Addition of fractions should be assigned after it has been learned in class.

In history the new assignment cannot always be read in class, and pupils may work upon it for themselves in preparation for the next recitation. But history is easy, while arithmetic is hard; so the teacher must help the pupils to understand the arithmetic by taking it up in the recitation period before they work any problems in it by themselves.

Examinations. Examination questions should not be too difficult. For what is desired in arithmetic is not the ability of a Newton, but skill in solving reasonably difficult problems. So the hardest questions in the text-book should not be given to the whole class with the expectation of their solving them all. Some pupils may; but it shows poor judgment to expect all to do so.

Tests in speed as well as in accuracy should be given. That is, once in a while a test should be given in which children are called upon to work problems as fast as they can for five minutes. The teacher then reads the papers and grades upon the largest number of accurate answers. This is what is done by the Courtis tests of which we spoke above.

Answers. When I was a small boy, we always had to look in the back of the book and find the answer before we were sure that our solutions were correct. My teachers did not know about checking. But since then the check has been introduced and is now used by all teachers. Checking is better than answers in the back of the book, because pupils can decide the correctness of their solutions for themselves. Nevertheless, in my opinion, teachers make mistakes in discarding the answers altogether, because, even if the pupil is required to check, it is of considerable interest to him to find out whether or not he is right before he begins to check. In

many problems, the simpler ones, he may not want to consult the answers; but in complicated cases the checking may be long and tedious, and it is only human to give him the chance to get the opinion of some one else.

Neatness. Children have to do a deal of "figuring" in working problems and exercises, and because this is not systematic it is difficult to preserve a reasonable amount of neatness.

This difficulty gives rise to extremes in standards. Some teachers require the children to be so neat on their scratch paper that they have to keep thinking about being neat all the time and cannot put their whole attention upon the working of their problems. Because Mary is a little girl is no reason why she is not carried away by the whirlwind fascination of a new scheme for working a problem, just as you or I grow enthusiastic over some new idea we have just thought of for the first time. Then, to be held back by having to do things in exactly a certain way is just as hard upon her as it is upon you or me.

Other teachers go to the other extreme, and allow pupils to hand in slovenly work. Their pupils' work is illegible and inexact; for illegibility in arithmetic and inaccuracy almost always go together.

Between the two extremes lies the desirable method. There should be two standards. Scratch work need not be so neat as work that is to be handed in. Ordinary politeness requires that we should make what others are to read as legible and pleasing to the eye as we can. This fact should be impressed upon the pupils; and in all work that others are to read, the papers should be rewritten if the first draft is not neat. By the use of separate "figuring" paper, the pupil can make his first copy

acceptable. In other words, pupils should not do their figuring on the same sheet on which they make their written statements; and the latter should be done with reasonable neatness the first time.

REFERENCES FOR CLASS READING

ARNOLD. *Waymarks for Teachers*, pp. 204–17. (General.)
MCMURRY. *Special Method in Arithmetic*, pp. 148–79. (Illustrative lessons.)
PERRY. *Problems of the Elementary School*, pp. 132–60. (Devices.)
SMITH. *Number Games and Number Rhymes*, pp. 4–28 (games involving number); pp. 68–93 (number games).
SMITH. *The Teaching of Elementary Mathematics*, pp. 98–144. (General.)

CLASS QUESTIONS

1. If you are not to explain arithmetic study as training in logical thinking, what good reason for it can you give?
2. Select four topics taught in arithmetic which are not used by pupils or farmers in practical life. Show that even where they seem to be used they are actually not used or need not be used by people who could use them if necessary.
3. Run through fifty pages of the advanced arithmetic in use in a school with which you are familiar and count the number of problems that are not mere exercise problems and are likely to occur in the lives of the people whom you know. How many problems and exercises are there altogether? What percentage of the problems are practical?
4. Keep track for seven days and see what arithmetic problems you have to solve outside school work. What topics in arithmetic would you need to know to solve them all?
5. Send for the Courtis tests and have yourself tested. Test a small class of pupils to learn how to do it.
6. Inquire till you find five adults who, while in school, did not like arithmetic. What were their reasons? Were these reasons such that with wise handling they could have been overcome? If so, how in each case?
7. What are the generic values that a teacher may use in getting interest in arithmetic? To what extent and when may the teacher use each?

8. Select from the list of games that involve numbers those that you could use in the schoolroom.

9. Go out into the community and find ten good, interesting (and not trivial) practical problems that might be given an eighth-grade class in arithmetic.

10. Why should pupils learn arithmetical operations thoroughly as they go along? What reason is there for thoroughness in arithmetic that does not hold so strongly for history?

11. Analyze three problems in arithmetic according to the plan recommended in the text.

12. Describe two problems outside arithmetic in which you had to try several solutions before you reached the right one. Pick out some great problem in history, and show the different solutions that different generations have tried.

13. Collect ten good arithmetic drill devices from your own experience, from friends, and from the reference readings.

14. To give mental arithmetic to a class in an efficient manner, what points must you observe?

15. If one knows his tables well, he should be able to repeat a multiplication table in eight seconds. Time yourself. Time a few of your friends. Time a few grade children.

16. Did you, as a student in the grades, find that consulting answers hurt the quality of your arithmetic work? Why?

CHAPTER XIII

PHYSIOLOGY AND HYGIENE

School Content. Physiology as taught in the grades consists of anatomy, physiology, and hygiene. By anatomy is meant the structure of the organs of the body; by physiology is meant their function; and by hygiene is meant their care. For instance, in a study of the teeth in school, there are three things to be considered: the structure of the teeth — root, neck, and crown; dentine, cement, enamel, and pulp (*anatomy*); the function of the teeth — mastication (*physiology*); and methods of preventing decay (*hygiene*).

Function of School Physiology. When I was a boy, school physiology consisted chiefly of anatomy; that is, of a study of the different parts of the body. We learned all the bones of the body, the structure of heart, lungs, digestive organs, etc. A little attention was paid to the function of these different organs. We learned, for instance, that the function of the heart was to pump blood through the system; of the lungs, to remove impurities from the blood and in return provide it with oxygen, and so on. But comparatively little time was spent on this. Almost nothing was said about the hygiene of the organs, except that the evil effects of alcohol were graphically depicted.

To-day the emphasis is wisely changed. The most important function of the study of physiology in the grades is to teach how to take care of the body. If rules of hygiene are learned so thoroughly that they will be

applied in practice, the subject is well taught. No matter how much anatomy or physiology is studied in school, it is of little worth if, from this study, there does not follow a set of rules of hygiene. It is interesting to know how teeth perform their function and what are the different parts of a tooth, but this is not of importance enough to be taught unless it forms a basis for rules about cleaning and caring for the teeth.

The relation of physiology and anatomy to hygiene is similar to the relation of grammar to language. In Chapters III and IV, we saw that we study grammar in the grades only for the purpose of teaching correct speech, and that grammar helps correctness of speech by showing why language rules are what they are — it gives the reason for the rules. In other words, anatomy corresponds to grammar; that is, the structure of the sentence, and parts of speech and their functions; while hygiene corresponds to language, or the rules by which we speak correctly.

This shows why we study anatomy and physiology. They explain the rules of hygiene. For instance, one rule of hygiene is, clean the teeth. This rule may be followed without question, because parents and teachers insist upon it. But many more children are more likely to do this if they know why they ought to clean their teeth. This, anatomy explains in part as follows: The crown of the tooth is composed of three layers: enamel, dentine, and pulp. In the pulp is situated the nerve. In the mouth are bacteria which, unless removed, will eat through the enamel and the dentine, exposing the nerve. Therefore, the teeth should be cleaned after each meal to get rid of decaying food which harbors these bacteria.

It follows from this that no more anatomy should be taught than suffices to explain the rules of hygiene. The human body is so complex an organism that its structure is not fully understood, even by doctors; and in school physiologies much more is taught than can be understood by children. If, therefore, we teach only enough to give the reasons for hygienic rules we may safely and wisely omit many names which are now given in most school physiologies.

Summary. In the study of physiology and hygiene in the grades, the end to be attained is a knowledge of and practice in the rules of hygiene. The study of the organs of the body should be made in sufficient detail to explain these rules if they can be easily explained, and no parts whose connection with these rules cannot be seen by the pupils should be studied.

Bacteriology. When I studied physiology in the grades, we heard little about bacteria because few people except the doctors knew of them, and the subject was not considered of great importance. But since that time a wonderful era of medical discovery has begun and is now growing by leaps and bounds. Then, everybody in my community thought that consumption was inherited; now we know that it is caught just like a cold. Then, yellow fever was a monster that could not be controlled; but to-day we know that it is caused by bacteria carried in the bodies of one kind of mosquito. Then, typhoid was not understood; but a short time ago a vaccine was found that makes the body immune to typhoid germs, just as Jenner's vaccine has conquered the smallpox germ. And almost any day now we shall hear that the pneumonia germ has met its victor in a new serum. Mothers twenty years ago had to stand helpless and watch their children strangle to death with diphtheria;

but to-day any doctor can provide the serum that kills the germ, and that would have saved those little snuffed-out lives had it then been known.

So, of course, in school, physiology must lay stress upon these germs. They are, as we know, living organisms that grow rapidly and can be killed. We know that some, like the typhoid germ, are carried through liquids; that others, like the tuberculosis germ, come from the sputum that is spit up by patients, and that, if this is taken care of, no one need catch the disease.

All this information is offered free by boards of health, by state universities, and by medical societies, in bulletins and in books. It is available for any teacher who will consult the nearest doctor or will write to his state university. There is no excuse for a teacher who is not interested enough to gather it; there are numberless people and organizations not only able but anxious to provide such literature, and either a doctor or the state university will tell the teacher how and where to get it.

Sanitation. A study of germ diseases such as tuberculosis, typhoid, smallpox, or diphtheria leads at once to a study of sanitation. For, if conditions are made such that the bacteria cannot live outside the body, they cannot, of course, get into the body. For instance, if the sputum of a consumptive is spit into open vessels or on the streets, it will dry and float up into the air and enter the lungs of someone who is not strong enough physically to withstand the attack of these virulent germs. In this way the disease continues to spread. So we say that this is not a sanitary method of taking care of sputum. Or, to take another case, the school may have an open well which may have dead snakes and rats

and other decaying animals in it,which produce disease germs. Or the well may be located on the slope below a cemetery, and all the poisons of decaying bodies may seep in. This is an unsanitary well. Again, the schoolroom may be poorly ventilated. Ten or fifteen children may breathe over and over again the same air, polluted with bacteria and heavy with carbon dioxide. This is unsanitary; for some of the children may be diseased, and the bacteria from their breathing may become thick in the room and be breathed in by other children, who, because there is so much carbon dioxide in the air and so little oxygen, are likely to be weakened, and thus made still more susceptible to the diseases that are in the air.

Summary. To teach children to maintain sanitary conditions and abhor unsanitary surroundings is the most important duty of hygiene, because sanitation kills germs and keeps the body healthy enough to throw off most diseases before they get a strong foothold.

Physical Exercise. As we have just seen, there are two things to be done in keeping healthy. One is to provide conditions that will kill disease germs, and the other is to keep the body healthy. It is particularly necessary to keep the body strong, because it is impossible to kill all disease germs. If the body is not weakened, it can frequently throw off the germs and keep them from getting a foothold in the system. For instance, I am told that post-mortem examinations reveal, almost invariably, scars on the lungs, so that we may infer that almost everyone at some time has a light attack of tuberculosis. In such cases, however, the body has been strong enough to keep the germs from getting a dangerous foothold. If by any chance the body is not suffi-

ciently strong to withstand the onslaught of the germs, or if no measures are taken to cure the cold that is often the beginning of the trouble, the disease becomes more serious, and usually causes death.

Plenty of physical exercise in the open air is necessary if one would keep healthy, because it keeps the body strong. However, country children do not suffer greatly because of lack of exercise. But occasionally, even in the country, there are boys and girls who do not get exercise enough, and the teacher should see that they do. Particularly is this true in poorly ventilated schoolhouses, where the six hours in school are a serious handicap to health. Teachers in such buildings should see that ventilation is as good as possible; and, to better conditions, they should, every little while, have the windows raised high, even in winter, and put the pupils through a series of exercises that will expand the chest and exercise, particularly, the muscles of the trunk.

A study of physiology is not worth a snap of the fingers if the teacher does not apply its principles in the schoolroom.

Summary. Physical exercises should be given frequently with the windows wide open, even in winter, if the schoolroom has a poor ventilating system.

Method of Teaching. The average teacher has a physiology textbook to teach from, which very probably contains a good deal of physiology and anatomy. He ought to have in addition some textbooks and bulletins dealing with diseases, their prevention and cure.

In teaching physiology, much the same plan may be used that was used in civics. That is, questions that lie close to the interests of the pupils should be raised, to

be answered by the text or by supplementary reading.

In securing these questions the teacher should read the material at the disposal of the class and write down those questions that he thinks will be of interest to the pupils. For instance, the textbook before me, which I have studied for a short time, has suggested a number of questions. I am not sure that they are all interesting to any particular class. That is a matter that would have to be determined by the actual presentation. But as I remember myself as a boy, it seems to me that they would have been interesting.

This chapter that I have used is entitled "The Circulatory System." The questions that follow are not arranged in any logical order, but are given in the order in which they occurred to me.

The first question I think of is, What makes a wound fester? This gives a chance to teach about white blood corpuscles and washing a wound with some antiseptic. When I was a boy we thought a wound festered if the blood was bad. Lister's discoveries, showing that if the wound was cleaned with an antiseptic there would be little danger of festering, had not yet reached us. Other questions follow without comment. Why is it that sometimes when you cut yourself, blood squirts out, while at other times it oozes? (This brings up the subject of arteries and veins.) What color is pure blood? impure blood? What sort of liquid is in a water blister? Why is a drinker's face red? What happens in the body when people blush? Where is your heart? How does the heart do its work? Why do we stick pigs in the neck? How can we stop nose-bleed? (By pressing nostrils together so that a clot will form.) What is there in the

blood that enables it to clot? If a friend had a very severe wound in the arm or leg, how could you stop him from bleeding to death? How does what you eat get into the blood? How fast does the pulse beat? What makes it beat?

The foregoing are only a few of the possible questions on this chapter. There are numbers of others which might occur to anyone else. Children themselves ask questions that give the teacher a cue which, if jotted down, will do for other classes in following years.

Books and Bulletins. To teach this subject successfully, a teacher must have a number of supplementary physiologies and bulletins collected from the sources mentioned above. This is necessary because very few textbooks on the subject lay sufficient stress upon hygiene and sanitation. Ninety per cent of the country schools now use texts that emphasize anatomy and physiology and only incidentally take up hygiene. Even where the text does deal primarily with hygiene, it is a good thing to have several books on hand; for boys and girls like to read about physiology and hygiene if they can find it simply written and well illustrated. When boys and girls dislike it, the cause may be laid to poor teaching, and this can be overcome in part by the use of simple, interesting reading material.

Drill. When a teacher has decided what parts of the human anatomy he will teach, the terms should be memorized by the pupils. If, for instance, *heart*, *artery*, *vein*, *ventricle*, and *auricle* are to be taught, they should be drilled upon. The pupils should be expected to be able both to spell and to pronounce them glibly. The rules for this have been discussed over and over again. First, by means of pictures and perhaps the examination

of a beef's heart, the parts should be clearly understood and visualized. Then, there should be attentive repetition until the terms have become automatic. If the pupils learn the terms well, they will be able to read health bulletins all their lives with intelligence; and it is becoming more and more necessary for people to be able to do this. But, if the terms used are a jumble of indefiniteness to them, they will form a distaste for all reading material upon the subject.

Clearness. A little boy on an examination was once asked to name the parts of the body, whereupon he delivered himself in these astounding words: "The human body consists of the head, chest, and stomach. The head contains the brains, if any. The chest holds the lungs, liver, and lights. The stomach consists of the bowels, of which there are five—a, e, i, o, and u, and sometimes w and y."

This boy was suffering from poor teaching, for the teacher had evidently not made a successful attempt to give him a clear picture of the inside of the human body.

This is not a difficult thing to do if the teacher uses pictures and *especially* if he spends time enough upon the "geography" of the organs to enable the pupils to locate the different organs and parts of organs. Some schools have models of the human body, though these are expensive. Some have colored physiology charts. Other teachers, wherever practicable, secure some of the organs of pigs, chickens, and beeves. All of this illustrative material is good and should be used as far as possible. But even with nothing but the pictures in the texts the teacher can teach the anatomy of the human body, if he will treat it as a geography lesson and have the organs and their parts located and drilled upon.

Physiology in the Course of Study. Physiology and hygiene may be taught either incidentally or systematically. They should be taught incidentally every day by having the schoolroom ventilated, by having the eyes cared for, and by taking advantage of the many opportunities for giving personal advice that come up daily in the school. When colds occur, methods of prevention and cure should be discussed with all the school. Measles, whooping cough, and mumps, as they annually return, should be the basis for instruction, the facts being secured from a doctor or from reliable books.

In addition, in the seventh and eighth grades, the subject should be taught systematically and should alternate by years. In this systematic study the adopted text and supplementary books and bulletins should be used by both the teacher and the pupils. And at every point the topics should be closely and interestingly connected with vital questions in the pupils' experience.

CLASS QUESTIONS

1. Make up a series of twenty questions that can be answered by physiology, that you think will be interesting to seventh- and eighth-grade pupils.
2. Work out a series of rules for the prevention of tuberculosis.
3. Give methods that can be used in preventing typhoid.
4. How can ventilation be handled in the schoolroom in which you now work?
5. What facts do you think it wise to have the pupils learn about the anatomy of the nervous system as a basis for hygiene? About the digestive system? In each case, what facts would you omit from those given in any textbook you know?
6. If you took charge of a school, what are the points about sanitation that you would examine? How would you go about the care of each of these if each was not satisfactory?
7. To what extent and in what way may a teacher successfully carry a health crusade into the homes of the children?

CHAPTER XIV

AGRICULTURE

1. Subject-Matter

Field of Agriculture. The subject of elementary agriculture as taught in rural schools consists of agronomy, animal husbandry, horticulture, farm management, and good roads. *Agronomy* is a subject whose function is the investigation of soils and crops; *animal husbandry* is concerned with the breeding, judging, and care of animals. In *horticulture*, plants, trees, and vegetables are studied. In *farm management*, the most economical handling of crop production and marketing is considered; and *good roads* deals with the question its name signifies.

The Value of the Study of Agriculture. The intrinsic function of each branch has been stated in the definitions above. To this function other values may be added. For instance, a study of agriculture should heighten the appreciation of agriculture and of farm life. To know that scientists are working upon the subject shows that it is of some worth. To learn new ways of doing things which appeal to common sense as practical lends interest; and the mastery of these methods produces financial gain, which makes living on the farm attractive.

In a broader sense, such an appreciation of agriculture, by making young farmer boys and girls interested, keeps them on the farm and tends to decrease the movement from the country to the city. The land-hungry cry of "Back to the Farm!" would then be changed to

"Never leave the Farm!" The advantages of country life have been painted in glowing colors by dwellers in both the city and the country; but so long as roads are poor, labor is unintelligent, and drudgery is forever present, these pictures will have no weight with the boys and girls who feel keenly the defects of country life. A farmer always has to work hard; but if he sees that he can have full scope for the use of his brains as well as his hands, he will be much better satisfied.

One of the chief aims to keep in view in the teaching of agriculture is to teach the children how to use agricultural bulletins. The simplest of these involves considerable knowledge of technical terms. But locked up in them is a vast quantity of useful knowledge. If the course in agriculture does no more than teach pupils how to get this knowledge out of the bulletin, it will have accomplished a world of good; and if it does not teach them how to use bulletins, it has largely failed in its effectiveness.

SUMMARY. The intrinsic function of agriculture is to give information about farm problems. In addition to this, the studying of agriculture engenders interest in the subject and, by showing the pupils that farming is a matter of both brains and brawn, tends to check cityward migration.

Course of Study. In the grades, the course of study is not and cannot be systematic. Here, if anywhere, the local necessities need to determine what parts of the limitless field of agriculture should be studied. In the corn belt, one set of problems will be emphasized, in the wheat belt another, and in the cotton belt a third. In one locality poultry is an interesting subject, in another horses, and in another cattle.

It has been the history of every subject taught in the

schools that when first introduced it has been practical; but before long it has become systematized, and the life has been pressed out of it. We hope that a new day has brought hope for agriculture; for, as in this text, so everywhere, educators are now, as never before, laying stress upon the necessity for keeping grade subjects practical, and it is to be hoped that this greatest of rural-school subjects will be saved the chilling fossilization of its predecessors.

To accomplish this, the teacher should use the text-book only as a means to the solution of problems. It should not decide for the teacher all the topics to be studied, nor the length of time to be spent on each. The writer of any given text lived in one locality and, consciously or unconsciously, made a text for that locality. But a class in a school a thousand miles away may live in a locality where other topics than those emphasized in the book are of greater importance. It would, in that case, be quite absurd to allow the text to determine the order of topics, or the time to be spent on each.

The wise teacher will study his community to find out the chief local agricultural crops and the most pressing agricultural needs and, having decided which of these are of most importance, will map out a two years' course of topics for the seventh and eighth grades. Then the text and other supplementary books in the library, and the bulletins from the agricultural department at Washington and from the local agricultural college, should all be studied to see what they have to say on the subject. These sources should be put at the disposal of the pupils, and they should read them as indicated by the teacher.

School gardens may be used for various purposes; but

it seems to me that their chief use should be for the trying out of new kinds of plants that are recommended for use by the state or national agricultural stations. This will give great interest to the work and will be of positive economic benefit to the community; for if the school can demonstrate the use of a new shrub, or bulb, or breed of grain and can thereby have it tested and proved satisfactory for general use, the boys and girls and their parents will adopt it for general cultivation.

The distinctive course in agriculture should be given in the seventh and eighth grades. It will be very easy for work in these two grades to alternate, because agriculture is not a systematic subject, and the work of the seventh grade is not necessary as a preparation for the eighth-grade work.

SUMMARY. The topics in the course of study should first and foremost and always be practical. Agriculture must not be made a mere book subject; but it cannot be taught without books and bulletins.

2. Motive

Immediate Interest. As in all other subjects, so in agriculture there may be immediate interest in the subject, or interest may have to be engendered. In this subject, however, the interest is essentially immediate to country people, because the subject is a matter of bread and butter to them. What is necessary to do is to pick out not interesting topics, but the *most* interesting topics.

The great problem is to sustain interest. This will be hard to do if care is not taken to select easy reading matter, or to make difficult bulletins easy by making judicious selections from them. If care is taken to make all the work and all the reading practical and fairly easy,

the interest will be sustained. It must not be made too easy, because boys and girls do not like things that are too easy. If it is just hard enough to make them exert themselves in a vigorous and healthy manner, it will be most effective.

Agricultural Clubs. Many schools and school officials use the club plan of work. Clubs are efficient agencies for inculcating enthusiasm in agricultural work. They are excellent agencies for social activity, for they supply a means of bringing boys and girls and young men and women together, so that in addition to the economic and financial benefits that accrue, fun and happiness abound. This is, in itself, a sufficient reason for their existence, even if nothing were accomplished beyond this. But in addition, the enthusiasm of numbers creates greater interest in tomato canning, corn husking, or in cotton planting and picking. What the singing-schools were to our fathers, these agricultural clubs may be, in part, to the children of this generation.

Information concerning the different sorts of clubs that may be formed, may be secured by writing the Secretary of Agriculture at Washington, D.C.

Correlation. Another means of heightening interest in agriculture is found in its correlation with the other subjects of the course of study. The first to come to mind is arithmetic. In Chapter XII, we showed how arithmetic would be benefited by the use of practical problems around the farm and home. Conversely, these problems increase interest in the farm and home, because the everyday drudgery is seen in a new light when it is made the subject of study in school. Language, also, may wisely make use of the topics of everyday farm life, and the value of these topics be thereby enhanced.

Poetry may be used to good advantage. There are found in every set of readers a few classics that deal with farm life, such classics as "The Barefoot Boy" or "Pictures of Memory." But there remains to be gathered together by somebody a supplementary reader, rich and interesting, which contains nothing but poems about farm life and the value of agriculture. Perhaps no subject has received more attention from poets from the days of Horace and Virgil till now, but the farmer boy sees few such poems. Yet a knowledge of this poetry would be second only to the study of agriculture in teaching a rich and deep appreciation of farm life.

Other subjects likewise may be correlated with agriculture to the mutual benefit of both.

3. Methods of Study

Problems. In the study of agriculture we have a parallel with the methods described in the teaching of arithmetic. First, a good practical problem is set. For instance, this may be the picking out of ten good ears of corn. The children go to the corn pile or bin and experiment. The data that they use is their knowledge of what constitutes a good ear. They form hypotheses; that is, in this case, they examine one ear after another and finally select ten. These are checked up by the teacher, or some other corn judge, to see whether or not the selection is correct. Or the problem may be that of preparing a piece of ground for wheat. The data are the things the pupils know about the topic, and the material found in books and pamphlets. They think it over, discuss it, make suggestions, and finally arrive at a solution. To check, they have to wait until the wheat is grown; and, after all other factors are taken into account,

they are able to see that the yield is better because of the preparation decided upon.

Collecting Data. The hardest problem in agriculture is giving the pupils data upon which to work. For instance, in the selection of ten good ears of corn the data are the things they know about good corn. This they have to learn from the study of agriculture. Or, in our second example, the data are the facts about a good seed bed as they are given in bulletins and books. This has to be sought for with great care and memorized with exactness.

The best way of teaching these data is to take up problems first and teach a few data at a time. For instance, in corn judging, it is not wise to teach all the factors in a good ear at first, and then judge. Much better results will be gained by the teacher if he gives the pupils two ears, one of which has good kernels and the other poor, and then asks which has the better kernels. When they make their guess, the kernel factor may be studied until they know the difference between a good kernel and a poor one. Then they may test this out by ranking ears by kernels and by nothing else. Then when this has been mastered, two ears, one having a good tip, the other a poor one, may be given to the pupils; and they may be asked to select the better tip, with reasons for their choice. This will lead to an explanation of the characteristics of a good tip. Then they may grade a group of ears by tips alone.

In this way all the points of a good ear may be studied one by one: and after all are studied, the pupils may be put upon the problem of selecting good ears by the score card, including all the points.

In this way the data — or, rather, the facts that gov-

ern them — may be picked up one by one and used in testing until they are remembered, before giving other data. This method avoids the waste of pouring in a mass of facts before they are used or have a chance to be remembered.

SUMMARY. In gathering facts they should be taught little by little, as the solution to little problems. In this way they will be remembered more exactly.

Intelligent Guessing. If pupils are allowed to work things out for themselves there is a gain both in interest and in understanding. For instance, if the teacher says the characteristics of the tip of an ear of corn are such and such, the result is not nearly so beneficial as when he says, "Which of these two ears has the better tip?" The latter method is better because the pupils then begin to think. This thinking may lead them to work out the characteristics of a good tip for themselves, or, if not, when the characteristics of the tips are given, their minds will be active and ready to take hold of the facts.

Nothing is more deadening than to have everything told to one. Even if the pupils spend much time in guessing intelligently, no time is lost: for what they get they get well. Whenever a boy is given an interesting task of his own, no matter what, and is allowed to put his own initiative into it, he may make mistakes, but he is gaining experience in the best school of experience — in the world, the school of practical initiative. If a teacher does not tell too much and allows the children to get a few things for themselves, teaching will be full of fun for him and drudgery will fly away, for the strain of teaching comes from the daily lift of a burden of

childish apathy. Give the pupil a chance to make intelligent guesses, and he will accept the chance to gain intelligent judgment.

SUMMARY. To guess intelligently is the highest type of thinking, and should be utilized to the full extent.

The Study of Textbooks. It is, as said above, impossible to teach agriculture well without the use of textbooks. By textbooks we mean, of course, both books and bulletins. The library should have a number of simple high school and grade texts upon the subject. Generous use of Farmers' Bulletins from the agricultural Department at Washington should be made. Selected bulletins published by state agricultural colleges should be placed in the library.

When the teacher has selected a problem to be studied, he should read all these texts on the topic and, after discussion in class, should assign certain pages in such of the texts as will give the pupils information. The business of the pupils should be to read these references to see what they can find to solve the problem under discussion. When the text is rather harder than they are well able to handle, some explanation and a very short reference, perhaps only to a paragraph, should be given. But it is surprising what seventh- and eighth-grade country pupils can get out of the most difficult bulletins when they have been trained to read them and to gather from them what they need. This is largely a trick of reading that may be taught with little difficulty and gained by a little intelligent practice.

Experiments. Certain topics in agriculture lend themselves beautifully to " laboratory " observation. The moisture-holding properties of soils may be illustrated

by soils in lamp chimneys. The germination of seeds and their testing for planting may be carried on in the classroom. These and a hundred other topics may be treated with the simplest sort of apparatus in any country school. What is needed is not expensive apparatus, but a wide-awake teacher. Suggestions for such experiments may be found in any textbook on agriculture.

Class Trips. Some localities may object to the use of school time for field trips, and in rural schools the teacher can seldom leave the lower classes in school while taking the seventh and eighth grades out to a neighboring field or pasture. But at noon or before and after school, the agriculture class may very well be conducted through a cornfield or a cow pasture. In such a place, the class can see in the field what is being discussed in the book, and can understand it much better than if it were merely talked about in school without being seen.

Constant use should be made of trips and information based upon them. Sometimes, when the teacher cannot go on a trip, questions for observation may be set which the children will study at home, or on the way to or from school. In so far as agriculture takes the pupils to the open fields and teaches them to use their eyes, it is a very useful thing.

Drill. The same rules for drill apply here as all the way through the textbook. Whatever is drilled should first be clearly understood and then repeated attentively until it becomes automatic.

In agriculture, care must be taken to have all the work understood, and those things that the pupils will use when they are grown should be selected for drill and should be well drilled. Tables, the constituents of

rations, and the points in corn judging are of such a nature.

Conclusion. While much has been written upon agriculture, little time has been given to the methods of teaching the subject. The important questions now discussed are the methods of getting interest in the study and the selection of topics for study. In getting interest, the methods are simple as shown above; and there is no unanimity in the selection of topics because, as shown above, the topics must vary with each locality.

The methods of teaching are, as has been shown, similar to those of other subjects which have already been discussed. The space given to the subject in this text does not denote its relative importance. It is shorter because in it principles are merely applied — principles for whose development space was taken in earlier chapters.

REFERENCES FOR CLASS READING

BRICKER. *The Teaching of Agriculture in High Schools*, pp. 122–65.
MCKEEVER. *Psychologic Method in Education*, pp. 181–94.

CLASS QUESTIONS

1. Why should agriculture be studied in rural schools?
2. Why should it be studied in city schools?
3. Name the five most important topics that could be studied in agriculture in your school community.
4. What bulletins do you think would be of use? (In answering this, write to the Department of Agriculture at Washington, D.C., asking for a list of their Farmers' Bulletins if you do not have them. Write also to your local agricultural college for a list of their bulletins.)
5. How much stress should be laid upon the fact that if the pupils study agriculture they can make more money?
6. Describe the workings of any agricultural club for school

children of which you know. If you know of none, write to the same address as in question 4 above, and ask them for any literature they have upon the formation of agricultural clubs.

7. Name ten interesting poems dealing with farm topics and farm life.

8. Describe an old-fashioned husking-bee or singing-school. Are young people different to-day from their fathers and mothers? Could they be persuaded to come together for similar purposes? Why? If so, how?

9. Name ten rather simple practical problems that you think would appeal to seventh- and eighth-grade boys or girls.

10. How would you proceed in letting them work out these problems for themselves? At what points do you think assistance would need to be given in each?

11. Name five practical problems that could be worked by visiting a field better than in the classroom without such a visit.

12. Name five simple experiments that could be worked out in the classroom. What apparatus would each require?

CHAPTER XV

SUBJECT-MATTER

Introduction. We are now in a position to gather together the principles that underlie the teaching of each of the subjects already treated.

These may be classified in four groups. There are certain principles that always may guide us in the selection of subject-matter to be taught. These will be discussed in this chapter. There are some general principles that deal with methods of making children interested, or of giving them a motive for study. These have been exemplified over and over again, and will be generalized in Chapter XVI. There are other general principles which have to do with the development of problems and the learning of subject-matter, which will be found in Chapter XVII. Finally, methods of assignment will be discussed in Chapter XVIII.

The important part of the succeeding chapters is not the statements in the body of the chapters but the questions at the end of each, which assist you in going over all the preceding chapters and systematizing them. Help in finding page references may be had by a liberal use of the topical index at the end of the text.

The Function of Teaching. The aim that the school has in view may be stated in various ways. The particular statement underlying our discussions is this: The function of teaching is to assist pupils to appreciate and control the values of life. This means that the school seeks to help pupils to do what they want to do. If they

want to learn to write, the school should teach them how. If they would like to learn to read, they should be assisted to control or master reading. But, in addition, the school is expected to teach them to appreciate what is worth doing. It should help them to discriminate between what is worth doing and what is not, and should lead them to love the former and hate the latter. Children then should be assisted in school not only to do what they want to do, but also to want to do what is best for them to do.

Function of Subject-Matter. The subjects taught in school, each in its own way, help the pupils to do this. We have found that the intrinsic function of spelling is to assist in the communication of ideas by attending to the order of letters in words. The function of writing is the same, except that it looks after the forms of letters. The intrinsic function of arithmetic is to help to get control of those values in which number is of use. The function of geography is to help control values by telling where they are and explaining in terms of place (climate and physiography) why they are there.

In short, the intrinsic function of subject-matter is to assist pupils to control values.

In so doing they learn to appreciate subject-matter. For if it helps them to control values, they will like it, and if it does not, they will not like it.

Other functions of subject-matter are often given. Other reasons are brought forward for its study. We are told that study in school strengthens the memory, the imagination, and the reasoning powers. Some subjects, however, we study in order to get ready for the studying of other subjects; for example, we study algebra in getting ready for university studies. Finally, we

study some subjects because ignorance of them will make people censure us. If, for instance, we speak ungrammatically, learned people may make fun of us.

These reasons for the study of subjects in school are called the indirect functions or uses to which the subjects are put. They are not the intrinsic functions for which the subjects were organized. That is, when arithmetic was begun by people ages ago, the inventors did not say, "We must find some means for training the memory." They did say, " We want to find a means for handling number." But we find that when we handle numbers the memory *is* strengthened. So we speak of such results of study as indirect.

There are three classes of indirect function. We speak of the first as the training or discipline of the mind. We speak of a second as a preparatory function when we find that by studying one subject we get ready for studying one more advanced. The third is known as a decorative function when it is discovered that by having studied subjects we are considered well educated.

The important point to be made in connection with all this is that if we can find no reasons for studying any subject except these indirect results, it is better not to study it. Each subject, on the other hand, is a tool fitted for its own peculiar work, and we ought to keep its intrinsic and peculiar function in mind.

SUMMARY. The intrinsic function of subject-matter is to assist pupils to control and appreciate things worth doing. Each subject is fitted to perform a special bit of work. Certain indirect results come from the study of subjects, and these are classified as disciplinary, preparatory, and decorative.

Structure of Subject-Matter. Everything made for a purpose has a structure, or organization. The watch is

made to show correct time; and every wheel, pivot, or mark on the face is organized into the structure. So each subject taught has its main divisions and its subordinate divisions. History is divided into ancient, mediæval, modern, English, and American divisions, and American history may again be divided into the colonial period, the revolutionary period, the period of the constitution, and the present period. Each of these may again be divided and subdivided.

Each part of history or of any other subject down to its minutest detail, is of use in carrying out the main function or purpose set for the subject.

If any unit of subject-matter, whether large or small, is well constructed, it has one chief characteristic. It contains nothing that is irrelevant. For instance, a good statement of the solution of a problem in arithmetic will contain no unnecessary steps.

Since an outline is a statement of the main points in a structure, every point in the outline should be relevant. Each should bear upon the central topic or function.

SUMMARY. Each unit of subject-matter is organized to carry out its function, and it is the characteristic of a good structure that there is present in it no irrelevant material.

Course of Study. There is a whole world full of subject-matter which might be taught to children. They may, theoretically, be taught all the languages in the world, all the sciences, all the arts, and all the history of the world. But we do not do so for two or three reasons. In the first place, they have no use for all of it; in the second place, they do not have time to learn it all; and in the third place, they cannot understand it all.

We have, therefore, to make a selection. To deter-

mine what to select is a very hard task, and in the attempt we meet with great difference of opinion. Some people include drawing, music, and manual training, while others decline to admit any one of these. Some want ancient history, while others scorn the subject.

In spite of the fact that we may differ as to details of selection, the principle by which to make a selection is very easily stated. Stated roughly it is this. Pick out the subjects that are most important for the children in the community in which they live, and teach them what they need of these from day to day.

Children have to read and write if they are to get the most out of life. History is an essential for correct action. Some knowledge of geography, arithmetic, and art is essential.

There may be differences of opinion about what is most important and what is not, but whoever organizes a course of study must come to some decision in the matter. The textbook writer decides upon the most important points when he writes his text. The teacher may differ from this opinion and decide that some of the things in the text are not important enough to study, or he may decide that the author has left out some important points and may insert them in his teaching. But, in every case, the thinking teacher and the thoughtful writer of texts must each decide upon what he thinks are the most important things for the children to study.

In deciding upon this, the needs and abilities of the children have to be considered. For instance, little children do not need the same subject-matter that high school students need. They are different. Children differ from grade to grade. Therefore, after we have decided upon what should be taught, we have to portion it among

the grades according to the interests and abilities of the children in each grade.

This has not yet been done with any great degree of success, because educational psychology has not been able to determine definitely what is of interest and of use for each grade. So we find that many things are supposed to be taught to children at a time when even the best teachers cannot get them interested in them.

The young teachers have, of course, to follow the course of study and textbooks rather closely, because they do not know children very well. But they should train themselves to watch for lack of interest and decide whether it is due to poor teaching, to fault of the pupils, or to selection of topics that cannot be made interesting. In the last case, such topics should be omitted.

SUMMARY. In making a course of study, the most important subjects for pupils should be selected, and these should be apportioned to the different grades according to the needs and abilities of the pupils.

CLASS QUESTIONS

1. What is the intrinsic function of each subject studied in the preceding fourteen chapters?
2. Name all the values that you have heard or seen stated for the study of each of these subjects.
3. Which subjects usually are believed to have the strongest disciplinary value?
4. Which are most commonly considered decorative?
5. Which subjects are considered to be preparatory?
6. What do you think of the statement that children should be taught only that for which they see the need right now, and should not be taught things for which they do not feel the need now, but will later? Why?
7. In the preceding chapters, statements were given about the grades in which each subject should be taught. Give a résumé of these.
8. Summarize what has been said about the interests and instincts of pupils in the different grades.

CHAPTER XVI

MOTIVE

Immediate Interest. When children study a subject, they are either interested or they are not. If they like the subject or the lesson and study it solely because they like it, they are said to have *immediate interest* in it. Many examples of this can be found in any school. Some boys and girls like history, others like arithmetic, and still others like spelling. Frequently some children like all the subjects studied in school.

With such children the question of interest need never be raised, and if all children liked all the subjects in school, the study of interest would never have been made. But, unfortunately, most children study some subjects in which they are not interested, and some children are interested in no subject studied. A state of affairs such as this has naturally led bright men and women to study the problem. Women studied it before men because they had to teach the children in the home and care for them long ages before schools were started.

Mediate Interest. Parents did not know that what they were trying to get was called " mediate interest." They merely tried to get children interested in things in which they were not interested. The name *mediate interest* was applied a short time ago to this kind of interest connected with a thing which is not interesting in itself. But the method of securing it has long been known and utilized.

Stated briefly, the way to get children interested in a

thing in which they are not interested is to associate it with something in which they are already interested. This means that the teacher has to find what the immediate interests of pupils are, and they are legion, and then mediate interest will be secured for uninteresting things which are associated with them. A boy may be interested in horses. If so, then anything that is connected with horses becomes interesting. For instance, arithmetic may be very uninteresting to this boy, but if he wants to figure out the rations that should be fed a working horse, he will take enough interest (mediate interest) in the subject to do the necessary figuring. Or, a girl may not be interested in spelling, but may be very much interested in making good grades to please her father. So, because of this interest in pleasing her father, she may take sufficient interest in a subject, naturally uninteresting to her, to secure good grades.

Generic Values. Parents and teachers in their study of how to secure this mediate interest hit earliest upon a number of interesting things that work equally well in all subjects. These we call *generic values* or interests, because they are general and apply to all sorts of cases. They found, for instance, that many children had immediate interest in avoiding punishment. So, when a pupil showed no interest in arithmetic, the teacher was in the habit of saying, " If you do not learn this arithmetic at once, I shall whip you." Other forms of punishment were utilized because they were found to be of immediate interest. Children do not like to remain in after school, nor do they like to be scolded. They do not enjoy getting low grades or failing in promotion.

Many teachers recognize this and try to secure mediate interest by whipping and scolding, by cutting down

grades, and by threatening the children with demotion.

It was felt, however, by many teachers that this harsh method of securing interest was not good. It tended to make pupils sullen and bad-tempered. It was found, too, that a large number of pupils were not interested in avoiding whippings, scoldings, demotions, and poor grades. So another class of generic values was utilized. Some teachers saw that children were anxious to receive praise and longed to please an attractive teacher. Therefore, instead of scolding, these teachers resorted to pleasant incentives. In this way it was discovered that with many children this was a much better way of securing interest in uninteresting subjects.

But critics complained that while these incentives might produce interest in school, they were not used outside school very much. When people are grown they are not whipped or kept in after school, nor are they always praised. These incentives, then, were thought to be poor because they were not permanent. So, the critics said, the generic values which you should use are those which will work all through life. Appeal to honesty, duty, ambition, rivalry, and the great virtues which will always last. So appeals are made to these.

In all these appeals, the guiding principle should be laid down that the highest value that can be appealed to should be used. An appeal to duty may be too high because the pupils are not yet interested in doing their duty. If mediate interest is to be secured by an appeal to any general incentive, the teacher must know his pupils. The same incentive may not appeal to everyone. Some pupils have an interest in avoiding a scolding; others have not. Some pupils may have a high regard

for honor and honesty; others may not. One pupil may be keenly interested in praise and have no interest in censure.

SUMMARY. In using generic values a teacher may appeal to harsh incentives or to pleasing ones. He may appeal to low motives or to high ones. He should know his pupils and make an appeal to the highest and most permanent that will move them.

Specific Values. Critics again appeared and objected that all these incentives were clumsy. They pointed out that if the only use the pupil saw for studying spelling was the securing of the approval of his teacher, he was not getting a very clear idea of the use of spelling. They said that we do not study spelling or any other subject to please the teacher. We ought to do it for its intrinsic function, that is, to help convey ideas more accurately. So they assert that the way to get children interested in a subject is to discover what its intrinsic use is and connect it with the corresponding immediate interest.

For instance, the intrinsic function of writing is to form letters correctly so that ideas may be communicated accurately. So the best method of getting mediate interest in writing is to see that the children have an immediate interest in putting some valuable idea on paper and then show them that, to do this so that others can understand it, they need to write legibly. This shows them the use of writing while at the same time it makes them interested in it. It kills two birds with one stone. Again, the intrinsic reason for studying arithmetic is not to make good grades. It is to give people good methods of handling number. So, instead of connecting arithmetic with grades, make the connection with the building of some interesting thing, or with the

calculating of some interesting problem such as food rations, or the percentage of improvement coming from the use of good corn.

The point of this method is that appeal is not made to generic values. It is made, rather, by finding out what the intrinsic function of the thing studied is, and then biding one's time until something comes up or can be brought up which is of great interest and in which the thing may be used.

SUMMARY. The appeal through the intrinsic function should be made wherever possible. When this fails with individual children in a class, appeal should be made to the generic values; for the class work must go on. If the appeal through the intrinsic function cannot be made to any pupils in the class, the teacher should consider the advisability of not teaching the particular thing at all.

Potential Interest. The question arises as to whether one should teach children things in which they are not interested. The answer is yes and no. We certainly ought not to teach them only the things for which they have already shown an interest. For it is sometimes possible to create an interest where none is visible. That is, interest may be potential or it may be active. The teacher is justified in teaching things for which there is a potential interest. But if there is no interest present, either active or potential; that is, if the teacher cannot create an interest in a topic, it ought not to be taught.

Problem. We have a habit of saying that people are interested in their own problems; or, in other words, that if a person has a problem he is interested. A problem comes whenever we see a difficulty in the way of accomplishing something in which we are interested. A boy likes to work at arithmetic. He finds something he can-

not do at once, and he has a problem. A girl wants to paint a picture. If she cannot, the problem of how to paint it arises. Or she may have no paint, whereupon the problem of getting paints is raised.

A very good way, therefore, to get children interested is to ask them questions and make them conscious of the fact that there are better ways of doing things, and that what they know is insufficient. This is not done by scolding but by putting them in the presence of difficulties. These difficulties should not be too great or the children may grow discouraged. In short, they should be given interesting problems to solve.

Need. The term need is one which is somewhat like interest in meaning. We may say that we feel a need for something or that we are interested in something. There is some difference of an abstruse sort between the two. The chief difference is that need implies a lack of something. If we say that a boy is interested in going to school, we have a different feeling about it from what we have when we say that he needs to go to school. In the first case we have a pleasant picture, in the latter we think of a boy who does not go to school and is suffering harm because of it.

The term need has in the last few years become common as a sort of synonym for interest, with the difference just noted.

Correlation. When we associate one school subject with another or with the life of the pupils outside of school, we speak of this association as correlation. Very often it is a means for securing mediate interest. For instance, a pupil may be greatly interested in drawing, but may have little interest in history. If he is given an opportunity to illustrate his history lessons, he may

become interested in them because of the correlation of the two.

Correlation is also of use in applying what is learned. If a boy studies geography and applies it to history, he understands both the geography and the history better because of the correlation. This sort of correlation is of great benefit, and wherever it can be made it should be made. It takes longer to cover a topic in this way, but it is not a waste of time, for the subject is better learned.

CLASS QUESTIONS

1. Name ten generic values of a permanent sort. Which of these might appeal to pupils of six years of age? Which to pupils of fourteen years of age?
2. Name five generic values, used chiefly in school, which are wholesome.
3. Name five generic values, used chiefly in school, which are not wholesome.
4. Is a teacher ever justified in whipping children? Why?
5. To what extent may a teacher legitimately use his pupils' liking for him as an incentive to study?
6. How would you create interest in each of the fifteen foregoing subjects discussed in the text, through the intrinsic function of each subject?
7. Name five interesting problems which each of these fifteen subjects will help to solve.
8. Show how each of these subjects may be correlated with some other subjects. Can each be correlated with each of the others? Demonstrate.

CHAPTER XVII

THE RECITATION

Under the term recitation may be gathered up a number of topics about helping children to understand subject-matter and to solve their problems.

Telling *versus* Developing. The easiest way for a "school keeper" to get through a lesson is to tell the children everything. But the best way is to help them get as much as possible for themselves. It helps them because what they learn for themselves they retain more exactly and more permanently, and because they understand it better at the time they learn it. It helps, also, because the pupil thereby is taught self-reliance and independence.

The developing method should not be used where the thing to be learned is too difficult to be understood. In that case it should be told to the pupils. For instance, if square root were taught to eighth-grade pupils, it would be wise to show them how to do it without explanation, because, while they can learn to use it, it is too difficult for them to understand why it is done as it is.

Questioning. The greatest tool used by the developing method is the question. To question well is the highest achievement of the teacher.

There are two classes of questions: the test question and the developing question. The purpose of the former is to find out how much children know, while the

purpose of the latter is to help them to do their own thinking.

Test questions should lead to topical answers. In testing pupils, the teacher should usually not ask a large number of little questions, but a smaller number of questions requiring more extended answers. They should not emphasize memory but should make the children think. In the questions at the end of each chapter, I have used very few purely memoriter questions, but have tried to ask questions which will show whether or not the students understand the content of the chapter, at the same time making them apply their knowledge in a new way.

In the developing questions, the teacher gives hints to help the pupils. Illustrations of these may be found scattered throughout the text.

A few little devices are of use in asking questions of a class. For instance, it is better not to ask questions in rotation because children know when their turn comes and may loaf in the mean time. It is better to say, "What is a noun, John?" than to say, "John, what is a noun?" for in the latter case, the rest of the class will leave the question for John to answer. But if John's name is not called at first, every pupil will be alert, thinking he may be named.

Questions should be definite. Questions beginning with *What about* are too indefinite.

Generally speaking, questions answered by Yes or No are poor, because the answer is usually given away in the question. For instance, the question, "Washington was the first President of the United States, was he not?" requires no thought. It is better to say, "Who was the first President of the United States?"

Answers. Children should not be allowed to answer in concert because the teacher cannot tell who is thinking and who is loafing. Occasionally in drill work they may be allowed to answer simultaneously, but only occasionally.

Answers that are complete sentences should not always be insisted upon because they retard class progress and are not required in intercourse outside of school. When a pupil's answer is obscure he may be asked to repeat, giving a full sentence; but usually an incomplete sentence is satisfactory.

Teachers should be careful not to repeat pupils' answers. It gets to be a bad habit with some teachers. If the class cannot hear the pupil speaking, he should be asked to repeat and speak more distinctly.

Problem and Solution. In the preceding chapter, we spoke of the problem. Every recitation has one or more big problems to solve. In the solution of these problems, as we found in an earlier chapter, there are several steps. We collect data; make hypotheses or guesses at solution; find, finally, the correct hypothesis; and proceed to verify the solution to see if it is correct.

This method can be illustrated in any subject. For instance, in agriculture, the problem may be, How can I best enrich the impoverished soil in a field? The data are all the facts that I know about enriching soil. My hypothesis may be (1) to use an artificial fertilizer or manure, (2) to grow alfalfa or cowpeas, or (3) to maintain a longer rotation. I may think each of these processes through in order to determine which to try, or I may try all of them. I verify when I at last discover which produces the best results at the smallest expense. When I have found this, I have arrived at the correct solution.

In this the place which needs most safeguarding and assistance is the forming of the hypothesis. The teacher may tell the pupil how to solve the problem, but it is much better to allow him to do some thinking and intelligent guessing for himself. This may take longer, but it produces much better results.

Then, instead of telling him that what he has done is right or wrong, ask him wherever feasible to find out for himself. In arithmetic he should check his result. In some other subject the teacher should ask him, at least, whether or not his answer satisfies him. If it does and is wrong, a few questions will often show him that his verification is inadequate and will set him to work again.

Induction. It is the birthright of every pupil to be given every opportunity to think. The teacher should not do his thinking for him. When he has reached his limit the teacher may think for him; but until that point is reached, interference is presumptuous.

Whenever rules, principles, definitions, or laws are to be taught, the teacher may tell them to the pupils, or he may use the inductive method.

This method means, briefly, that by the examination of a few particular cases the generalization may be found by the pupil for himself. As has been illustrated in many cases in earlier chapters, there are three main steps in induction. *First*, there must be some particular cases to examine; *second*, these must be compared to see in what respects they are alike; and, *third*, the generalization may then be stated. Suppose the problem is such as this. A young man visits the city and wonders what the latest styles in hats are at this time. As he walks up and down the streets he looks into the shop windows and sees the

hats. He watches well-dressed men on the street and sees what they wear. In this way he sees many hats. He compares these and forms the generalization that smart hats this year are made of velvet or are extreme in color, or whatever the case may be.

If a generalization is reached by any other means than by an examination of particular instances, it is not induction.

The Herbartian Five Formal Steps. As explained above, the psychologist, Herbart, and his followers worked out a plan for teaching which involved these three steps and two others, and these were called the Five Formal Steps. These the teacher frequently meets in his reading on methods of teaching.

The steps are called: Preparation, Presentation, Comparison, Generalization, and Application. In the first step, *Preparation*, the problem to be solved is stated; in the second, *Presentation*, the particulars are presented and studied; in the third, *Comparison*, these particulars are compared; in the fourth, *Generalization*, the generalization, rule, principle, definition, or law, is stated; and in the fifth, *Application*, the generalization is drilled upon and used in solving other problems. It will be noticed that in the second, third, and fourth steps we have the three steps involved in induction.

The Five Formal Steps are useful whenever the problem is that of forming rules or making definitions.

Deduction. On the other hand, to find out what to do we often use rules already known to us. For instance, I wonder whether or not the low standing of a pupil is due to defective sight. I know that if boys' eyes are good they can read letters of a certain size at twenty feet. This is a rule. I find that this boy cannot do so; therefore I

decide that his eyes are bad. Here I have used a general rule to handle a particular case.

In induction, we examine particular cases in order to find a rule. That is how the rule about reading letters at a certain distance was formed; many eyes were tested and the results compared. But now that I have the rule I apply it to a particular case that I had not examined before.

This is called deduction and involves three factors or steps. *First*, there is a general rule; *second*, there is a particular case; and, *third*, I try to find the rule that will fit the case or try to find a particular case that will fit the rule.

Deduction is used in every subject. In arithmetic a little time is taken learning rules and processes, but most of the time is spent solving problems by the application of known rules. In grammar all parsing and analysis involves the using of definitions in handling particular sentences. In drawing, geography, writing, and music, principles are used frequently.

Drill. When a rule or method of any sort is to be used frequently, it pays to make it as perfect as possible and then to form the habit of applying it automatically, so that it will not be necessary to think about it whenever we want to use it.

This can be done by drill. We have already mentioned the steps in drill many times, but it will do no harm to look at them again. The *first* thing that is necessary is to understand the thing to be drilled upon. The psychologist says that there must be a "clear initial impression." The *second* thing that must be done is to have attentive repetition. It is not sufficient to repeat the matter. When the repetition occurs, the attention should

be fixed firmly upon it. It pays, moreover, to repeat for a short time frequently, rather than to repeat for a long time infrequently, because the attention gets tired very easily. The *third* thing is to see that the thing being drilled upon is repeated till it becomes automatic. If one gives up the repetition before it has reached the point where one does not have to think about it, the labor is wasted.

Realness. Much has to be taught in school which pupils have never seen and which cannot be experienced in school. This necessitates the vigorous and vivid use of the imagination. We can make things, though absent, real by dramatization; by the use of blackboards; by comparing some situation which the pupils have never experienced with something they have seen; by models, diagrams, and pictures; and by using type lessons by which, instead of running quickly over many lessons all alike, we select typical ones and put more time upon them.

CLASS QUESTIONS

Collect from each of the first fifteen chapters all instances of —

(1) The use of the developing method.
(2) Test questions.
(3) Developing questions.
(4) The solutions of problems.
(5) Induction.
(6) Deduction.
(7) Drill.
(8) Methods of securing realness.

CHAPTER XVIII

ASSIGNMENT AND STUDY

Study. In rural schools, the pupils have necessarily a great deal more time for study outside the class than children in city schools are likely to have. They receive less assignment work from the teacher, and must consequently do more independent work for themselves. This, in some respects, is an advantage. But unless they learn how to study, there is a fearful waste of time. This they can be taught only in class, because the teacher is busy with other classes while they are at their seats.

Assignments. The teacher can be of material assistance by setting the right sort of assignments. The hardest kind of assignment and the most frequently used is this: "Take the next four pages." This is the hardest because the children have to find out not only what problems the text is attempting to solve, but, in addition, what the solution is. To many children who are given this sort of assignment, the idea never occurs that the text is solving any problems. They merely learn a mass of facts.

This situation can be improved by the teacher if, in such subjects as literature, history, or geography, a few questions, the answers to which may be found in the assigned lesson, are placed on the board. This has been illustrated frequently in earlier chapters. Sometimes such questions may be set that the pupils will have to consult two or three textbooks in the library in order to form their answers.

When assignments are made in more than one text, rather definite page references in each case should be given, though, as said above, it is surprising how much pupils who are trained to do it can dig out of a number of books without much assistance.

There are a few things which a pupil in the seventh and eighth grades should be expected always to do. For instance, there should be at hand a simple dictionary, and each pupil should be expected to look up the meanings of all words he does not know.

Pupils may also in study hours be required, if they have any liking for drawing, to illustrate selected passages in lessons assigned. Even if they have little skill they should not be debarred from the exercise.

Assignments are easily made in the subjects of spelling, grammar, drawing, the handicrafts, and arithmetic. The difficult subjects to study are reading and literature, geography, language, history, civics, agriculture, and physiology. These, as just stated, can be materially helped by the assignment of definite and large questions.

After some practice the older pupils will get to a point where they can, as a variation, be asked to read the assignment and to write down what they think to be the important questions which it answers.

Study lessons should be assigned so as to require a minimum of written work by the pupils. Nothing is more deadening than to require constant writing. Outlines of lessons may be written. But greater detail may be required only where there is good and sufficient reason for it.

In making difficult assignments it will often pay the teacher to take the time of the recitation to talk the lesson over with the pupils and make the assignment

clear. For while it takes time from a short recitation it helps the pupils to utilize the long period of study to the best advantage.

The Use of the Textbook. Rural teachers must use the textbook more constantly than do city teachers because of lack of time. The weakness of this arrangement is that, unless adjustments are made to meet conditions, the textbook tells the pupils what they want to know and leaves them little opportunity for finding out things for themselves. This may be obviated in great part by the use of good assignment questions to which the answers cannot be found in a single sentence. If the questions asked are thought questions rather than memory questions, the pupils will use the text merely as a place from which to collect data which can be used in helping them to think out other problems set by the teacher. Illustrations of these are given in preceding chapters.

Assignments in Lower Grades. In the lower three grades the assignments have to be very definite and simple. One difficulty in the rural school is that these classes cannot be called very often, and when they are called they are short, thus leaving those children who are least able to work alone, to occupy themselves for the longest time. In this case, there should be recourse to handwork of various sorts and to drawing in addition to the study of reading. This has already been discussed in other chapters, particularly in the one on handicrafts.

It is always advisable to allow young children in the lower grades to have longer intermissions than the older ones. It is cruel to keep them in school all day long when they can learn just as much and more if they are in school half the time. Teachers, however, in some

communities have to be cautious in introducing such a seeming innovation.

CLASS QUESTIONS

1. Collect from the first fifteen chapters illustrations of the following: —

(1) Assignment questions.

(2) Illustrations of the use of the textbook.

2. Make out assignment questions for a literature lesson, a geography lesson, a history lesson, a lesson in civics, and one in agriculture.

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